When Roll-up Breaks: Serial Private Equity Acquisitions in the Hospital Industry *

Sungil Kim†

Abstract

This paper challenges the view that private equity roll-ups persistently create value across sequential acquisitions. In the hospital industry, while platforms achieve sustained gains in operating performance, subsequent add-ons fail to replicate this success. Decomposing this add-on stagnation reveals that underperformance is driven by the financing source. Add-ons funded by new external debt preserve profitability, consistent with lender discipline. Conversely, internally financed add-ons bypass this screening mechanism and suffer significant declines in operating performance. This deterioration is concentrated in low-collateral targets where asset tangibility cannot substitute for monitoring. These findings indicate that the roll-up structure fails to mitigate agency costs: internal capital markets in private equity facilitate investment in marginal projects when the governance role of external debt is absent.

Keywords: Private Equity; Roll-up; Hospital Acquisitions; Lender Screening; Internal Capital Markets; Financial Contracting.

JEL Classifications: G23, G32, G34, I11

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†Fuqua School of Business, Duke University, 100 Fuqua Drive, Durham, North Carolina 27708. E-mail: sungil.kim@duke.edu.

1 Introduction

Private equity (PE) buy-and-build strategies have reshaped the U.S. hospital sector by consolidating fragmented providers into large, integrated platforms. While the strategic rationale emphasizes economies of scale and operational synergies, the empirical reality reveals a stark divergence in performance. The initial "platform" acquisition typically succeeds, benefiting from immediate operational improvements and financial optimization. Yet the subsequent "add-on" acquisitions that drive the roll-up strategy frequently fail to generate value. This discrepancy presents a puzzle. If the platform model is sound, why does the replication of that model across add-ons falter? This paper argues that the answer lies in the financing structure, which governs the selection and execution of the operational strategy.

I investigate this puzzle by decomposing PE roll-ups into distinct financing modes based on their capital source rather than merely their timing. In Mode 1, or fund-financed acquisitions, the private equity firm finances the target directly by calling capital from limited partners (LP equity) and securing new, deal-specific external debt. Because these transactions require fresh underwriting, they are subject to direct lender scrutiny. In contrast, Mode 2, or platform-financed acquisitions, rely on the platform company's internal capacity, typically utilizing existing credit facilities or operating cash flows, and as a result bypass deal-specific screening by external debt markets. I interpret the divergence in these financing structures through the lens of Axelson et al. (2009), who argue that the governance value of the PE model relies heavily on the discipline of deal-by-deal debt financing. In their framework, lenders act as a screening mechanism by funding only credible projects with contractible collateral. When this external constraint is removed, as is the case in internally financed add-ons, managers retain the discretion to fund marginal or negative-NPV projects. This discretion can lead to overinvestment and performance deterioration. Consequently, this framework suggests a sharp empirical prediction: underperformance in roll-ups should be concentrated in Mode 2 deals, specifically where the target lacks the pledgeable collateral necessary to enforce discipline in the absence of a bank.

The U.S. hospital industry offers an ideal setting to explore this mechanism due to its high capital intensity and the granular, standardized reporting required by the Centers for Medicare and Medicaid Services (CMS). Using a sample of hospital acquisitions and detailed cost-report data, I distinguish between the initial platform creation and subsequent add-on types. Identifying the causal effect of these financing structures requires addressing the endogeneity of target selection, as PE firms might acquire hospitals based on unobservable trends. To address this challenge, I employ a rigorous matching strategy based on pre-acquisition size, profitability, and location. This ensures that the control group reflects the counterfactual trajectory of similar hospitals. I supplement this with an instrumental variables (IV) strategy that exploits state-level variation in Corporate Practice of Medicine (CPOM) laws to isolate exogenous variation in PE entry (Liu, 2022).

The analysis begins by establishing the structural logic of the roll-up through target selection. I find that PE sponsors, or general partners (GPs), systematically select platform targets with low leverage and high operating margins, creating a "financial anchor" with significant unused debt capacity. In contrast, add-on targets, particularly those financed internally, are selected for high leverage and high operating margins, despite their low return on assets (ROA). This profile identifies them not as fundamentally weak assets, but as operationally viable yet financially constrained turnarounds where strong core cash flows are obscured by debt or overhead. This staged selection sets the conditions for the subsequent divergence in performance: the platform is engineered to bear the debt capacity that funds the acquisition of these capital-constrained add-ons.

Following this selection, the results confirm a sharp performance divergence. Platform hospitals exhibit robust value creation. Following the acquisition, they benefit from an immediate financing advantage that anchors the roll-up, followed by sustained improvements in profitability. However, this success does not scale to add-on acquisitions, which show no significant profitability gains on average. To explain this discrepancy, I decompose the add-on results by financing mode. Mode 1 (Fund-Financed) add-ons, which are screened by external lenders, show no change in ROA. This stability is consistent with banks filtering out value-destroying projects but limiting upside variance. In contrast, the aggregate underperformance of add-ons is driven entirely by Mode 2 (Platform-Financed) deals, which make up about three-quarters of all add-ons. These internally financed acquisitions exhibit significant value destruction, with ROA declining significantly. This finding challenges the view that internal capital markets in PE efficiently allocate resources. Instead, it is consistent with the Almeida and Wolfenzon (2006) view that internal funds facilitate aggressive expansion into lower-quality projects.

The central contribution of the paper is linking this Mode 2 failure to the specific mechanism of collateral screening. To examine whether asset contractibility mitigates these agency costs, I interact the financing mode with the target's fixed assets. I find that the value destruction in Mode 2 is entirely driven by low-collateral targets. For small, asset-light hospitals where valuation depends on "soft" and unverifiable synergies, Mode 2 acquisition leads to deep underperformance. Conversely, when Mode 2 targets possess high levels of tangible fixed assets, the performance penalty disappears and eventually turns positive. This pattern is consistent with the Axelson et al. (2009) framework, where agency costs stem from the non-verifiability of deal quality. I find that high levels of tangible, contractible assets naturally limit these agency conflicts by providing a hard valuation floor, thereby effectively substituting for the screening role of external debt. When the target possesses significant hard assets, this contractibility restores discipline even in the absence of a new lender; conversely, when assets are low and the lender is absent, agency costs manifest as overpayment for unrealized synergies. These findings reveal exactly when the roll-up strategy breaks: the model fails specifically when the financing structure bypasses the discipline of external screening. Value destruction is not intrinsic to the strategy itself but is concentrated in the small, low-collateral add-ons that evade market discipline.

Beyond the financial mechanism, I document the operational consequences of these incentives. In a sector where reimbursement rates are largely fixed by regulation, platform hospitals achieve efficiency gains through "within-rule" strategies: optimizing coding, increasing the case-mix index (CMI), and improving throughput rather than raising commercial prices. This suggests that the successful PE model in the hospital industry relies on sophisticated revenue-cycle management that requires scale to execute. In contrast, add-on acquisitions generally show signs of contraction. They reduce labor and service scope without achieving corresponding efficiency gains.

This paper makes three primary contributions to the literature on private equity and corporate finance. First, I open the "black box" of the roll-up strategy by establishing a staged perspective on selection and performance. While prior work typically treats PE ownership as a uniform treatment, I show that sponsors select low-leverage platforms to serve as financial anchors, creating robust operational value, whereas subsequent add-on acquisitions fail to replicate these gains. Second, I explain this discrepancy by showing that the mode of financing determines the success of the intervention. I provide evidence that the underperformance of add-ons is driven entirely by internally financed deals that bypass external market discipline, while externally financed deals preserve value. Third, I provide novel empirical evidence for the governance role of external debt markets. By showing that value destruction is concentrated in unscreened deals with low collateral, I validate theories that emphasize deal-specific financing as a primary check against agency costs. These results highlight the limits of the internal capital market in private equity: the removal of external debt screening in add-on acquisitions facilitates investment in lower-quality targets, leading to operational underperformance that the roll-up structure fails to mitigate.

2 Related Literature

This study contributes to several strands of literature on private equity, financial intermediation, and health care markets. First, I add to research on the real effects of private equity ownership in hospitals and related provider settings (e.g., Liu, 2022; Gao et al., 2025) and on operational changes following buyouts more generally (Kaplan, 1989; Harris et al., 2005). Prior work typically treats private equity acquisition as a homogeneous event. I introduce a classification of targets into stand-alone, platform, and add-on categories and show how outcomes vary with a hospital's position relative to the roll-up sequence. This framework enables a more nuanced assessment of how value creation strategies evolve within portfolio buildouts. Furthermore, by distinguishing platforms from add-ons, I add nuance to mixed evidence on staffing and quality in PE-acquired providers (Lichtenberg and Siegel, 1990; Davis et al., 2014; Dafny et al., 2019; Eliason et al., 2020; Cerullo et al., 2022).

Second, I relate to research on hospital responses to reimbursement rules. Classic evidence shows that hospitals exploit within-rule levers to raise revenues by adjusting coding and scope rather than by fundamentally altering care delivery. For example, hospitals increased coded severity in response to Medicare payment reforms (Dafny, 2005; Silverman and Skinner, 2004; Song et al., 2010). This precedent motivates my test of whether platforms similarly expand service-line scope and raise measured severity while keeping commercial price stable.

Third, and most centrally, I connect these divergent outcomes to theories of financial contracting and internal capital markets. My results provide empirical support for the framework of Axelson et al. (2009), who argue that the governance value of the PE model relies on the screening discipline of external debt markets. I show that externally financed add-ons (Mode 1), which face lender scrutiny, preserve value, whereas internally financed add-ons (Mode 2) destroy value. This aligns with Almeida and Wolfenzon (2006), who predict that internal funds are often allocated to lower-quality projects that external markets would reject. By showing that this value destruction is concentrated in low-collateral targets, I provide novel evidence for the governance role of debt in preventing overinvestment in "soft" or unverifiable synergies.

Fourth, I build on research on merger selection and roll-up strategies. While prior work on roll-ups emphasizes operational synergies, scope expansion, and price hike (Bourreau and Doğan, 2006; Borell and Heger, 2013; Bansraj and Smit, 2017; Hammer et al., 2022; Asil et al., 2024), financial conditions also drive target selection. Rhodes-Kropf et al. (2005) establish that valuation deviations determine the matching of acquirers and targets in public markets. I extend this logic to the private equity context, showing that financing capacity, specifically the platform's access to cheap internal debt, acts as the primary currency driving the selection of add-ons. While the platform serves as the disciplined foundation of the roll-up, add-on selection is often distorted by this excess borrowing capacity, which helps reconcile why these later targets deliver narrower savings and fail to replicate the broader improvements observed at the platform.

Finally, I contribute to research on hospital financing, which shows that hospitals' investment and operating decisions are highly sensitive to financial conditions even outside the private equity context. Nonprofit hospitals adjust capital expenditures in response to the cost of capital and financing constraints (Wedig et al., 1989; Calem and Rizzo, 1995), and regulation and governance shape investment and operating outcomes during ownership conversions (Leone et al., 2005; Herpfer et al., 2024). Other studies find that hospitals increase investment in response to positive asset inflows and cut back after negative wealth shocks (Adelino et al., 2015; Dranove et al., 2017; Adelino et al., 2022). Debt structure also influences bargaining with payers, underscoring the central role of financing in hospital strategy (Towner, 2020). My analysis extends this literature by showing how financing advantages are sequenced across platform and add-on acquisitions in private equity roll-ups.

3 Conceptual Framework

I propose that the divergence in post-acquisition outcomes is driven primarily by differences in financial contracting and market discipline, which interact with the specific institutional constraints of the hospital industry. I outline two distinct channels: a primary *Screening and Discipline Channel* that governs target selection based on financing mode, and a secondary *Operational Channel* that dictates how value is captured under fixed reimbursement rules.

3.1 The Screening and Discipline Channel

The core mechanism relies on the governance role of external debt markets. Following Axelson et al. (2009) and Almeida and Wolfenzon (2006), I posit that the source of capital determines the level of screening applied to an acquisition.

In a leveraged buyout, external lenders provide a critical monitoring function. Because banks and institutional lenders bear downside risk, they screen transactions based on verifiable, contractible information, primarily pledgeable collateral and cash flow visibility. When a deal requires new, deal-specific external debt (as in Mode 1 add-ons), the sponsor must convince a third party that the target fundamentals support the valuation. This external check filters out marginal or negative-NPV projects driven by agency conflicts or managerial over-optimism.

In contrast, when a sponsor utilizes internal capital markets (as in Mode 2 add-ons), this external discipline is bypassed. By funding acquisitions through the platform's existing credit facility or operating cash flows, the sponsor avoids deal-specific underwriting. Without the binding constraint of a skeptical lender, the sponsor retains the discretion to invest in lower-quality targets. This agency cost is particularly acute when the target lacks tangible collateral. For low-collateral targets, valuation depends on "soft" information such as projected synergies, which are difficult to verify. In the absence of a lender to enforce discipline, internal financing facilitates overpayment for these soft synergies, leading to the value destruction observed in the data.

The incentives for underperformance are further compounded post-acquisition by intra-group dynamics. Literature on business groups shows that when a controlling investor uses one firm's funds to acquire another, uneven exposure to gains and losses across entities can distort incentives and enable tunneling (Bertrand et al., 2002; Bertrand and Mullainathan, 2003). Related work on common ownership documents that shared investors holding asymmetric stakes across affiliated firms can similarly misallocate value (Backus et al., 2021). These structural incentive asymmetries reinforce the performance gap between externally and internally financed acquisitions.

However, high levels of tangible assets can substitute for this missing external monitor. When a Mode 2 target possesses significant fixed assets, the contractibility of the asset itself anchors the valuation, reducing the scope for agency costs even without a bank's direct oversight. This framework predicts that the "roll-up discount" will be concentrated specifically in internally financed, low-collateral transactions.

3.2 Institutional Context: Value Creation under Fixed Prices

While the financing channel governs which targets are acquired and whether they destroy value, the institutional setting of the hospital industry constrains how operational value is created or lost.

This study focuses on hospitals where Medicare and Medicaid account for the majority of discharges. Because these public programs utilize fixed prospective payment schedules (IPPS/OPPS), discretionary price negotiation is precluded. This contrasts with studies focusing on the commercial insurance market, where private equity value creation is often linked to increased bargaining power and higher negotiated prices (Liu, 2022; Asil et al., 2024). In the segment analyzed here, value creation cannot rely on simple price increases.

Instead, successful operators must utilize "within-rule" strategies that require operational scale and sophistication. These include investments in Revenue Cycle Management (RCM) to optimize clinical documentation and coding, thereby increasing the Case-Mix Index (CMI) and reimbursement per patient within existing legal frameworks. These strategies involve high fixed costs, such as specialized software and coding consultants, that favor large platforms over smaller standalone entities.

This operational constraint interacts with the financing mechanism. Platform hospitals, anchored by cheap financing and rigorous initial screening, successfully deploy these scale-dependent strategies to drive revenue gains. Conversely, unscreened Mode 2 add-ons, often smaller and selected without regard for fundamental quality, fail to justify the investment required to upgrade these systems. Instead, the value destruction in these targets manifests as contractionary cost-cutting, including reductions in labor and service scope, as sponsors attempt to manage assets that lack the fundamental capacity for within-rule revenue growth.

4 Hypothesis Development

When monitoring is costly, lenders price loans at origination using pledgeable collateral and observable risk rather than unverifiable future efficiencies (Myers, 1977; Diamond, 1991; Rajan and Winton, 1995). In leveraged buyouts, external debt markets provide screening and monitoring, financing only credible value-creating transactions (Axelson et al., 2009). Because platform acquisitions require raising new outside capital, they face significantly greater market scrutiny, whereas subsequent add-on acquisitions are predominantly financed internally from the platform's balance sheet and therefore bypass the discipline of external underwriting. Private equity value creation typically operates through financial, governance, and operational engineering (Kaplan and Strömberg, 2009), but the deployment and effectiveness of these tools depend on the financing environment at entry.

H1: Staged selection and the financial anchor.
Platform targets are selected for high gross margins and low leverage to maximize debt capacity. In contrast, add-on targets are selected for high leverage and high gross margins but low return on assets, reflecting financially constrained targets with strong underlying unit economics but significant operational inefficiency. This specific profile is concentrated in platform-financed (Mode 2) add-ons, whereas fund-financed (Mode 1) add-ons display a standard financial profile, consistent with external lenders screening out highly levered or complex turnarounds.
Rationale. Platform financing is priced against collateral and observed performance, favoring candidates with strong operating cash flows and unused debt capacity to minimize borrowing costs (Myers, 1977; Diamond, 1991; Rajan and Winton, 1995). While fund-financed add-ons must meet standard external lending criteria, internally financed add-ons utilize the platform's balance sheet to absorb highly levered or low-ROA targets that would otherwise lack independent access to external debt markets.

H2: Up-front financing advantage at platforms.
Platform hospitals experience immediate reductions in financing costs at deal close, reflected in lower interest expense and narrower LIBOR-adjusted spreads. Add-on hospitals do not receive such repricing and may temporarily face higher effective borrowing rates when funded as incremental draws under the platform's existing credit facility.

Rationale. Platform deals undergo fresh underwriting and repricing against observable risk, whereas add-ons draw on pre-existing debt agreements without deal-specific repricing.

H3: Divergent post-acquisition performance.
Platform hospitals exhibit improvements in operating margin, operating income over assets, and return on assets, while add-ons show muted or no profitability gains.
Rationale. Consistent with theories of financing discipline and selection (Axelson et al., 2009; Almeida and Wolfenzon, 2006), externally screened platforms reflect higher-quality investments and receive deeper post-acquisition restructuring, whereas internally financed add-ons are prone to agency costs and exhibit weaker incremental effects.

H4: The Collateral Channel (Screening Substitution).
The underperformance of internally financed add-ons is concentrated in low-collateral targets. Performance is increasing in the target's total fixed assets.
Rationale. When external debt screening is bypassed (Mode 2), agency costs manifest primarily in low-collateral targets where value depends on unverifiable soft synergies. High asset tangibility restores discipline by anchoring valuation, mitigating the negative effects of internal financing (Axelson et al., 2009).

5 Data and Sample

I construct a Hospital-Fund-Year dataset, meticulously constructed by integrating multiple data sources, to evaluate the effectiveness of the roll-up strategy in hospital acquisitions by PE firms. This dataset enables a detailed analysis of how operating performance evolves from initial platform acquisitions to subsequent add-on deals, offering insights into the challenges and dynamics of expanding healthcare portfolios. It provides a comprehensive examination of how post-buyout hospital operations and performance unfold as PE firms scale through sequential acquisitions, revealing key patterns and outcomes in their efforts to integrate and manage multiple hospitals. The final hospital-year panel dataset spans from 1996 to 2019, covering financials, operational metrics, and ownership status. The primary data sources are CMS Cost Reports, CMS Quality Net, PitchBook, and American Hospital Association (AHA) data, supplemented by Preqin, Capital IQ, SDC Platinum, and FactSet.

5.1 Unit of Observation and Accounting Scope

CMS Cost Reports (HCRIS) are filed by the hospital operating entity and are not consolidated at the platform hospital system (the parent that owns the hospitals and often books buyout and add-on financing). Parent-level borrowings can therefore be invisible in hospital filings.

Hospital liabilities may show little change, and they can even fall if deal-close refinancing retires operating-company loans. Throughout the analysis, leverage and interest measures are interpreted as hospital-level outcomes, not the parent system's consolidated capital structure.

5.2 Data Sources

The dataset is constructed using the following primary data sources:

CMS Cost Reports

The CMS Cost Reports provide standardized financial and operational information for all Medicare-certified hospitals, including revenues, expenses, assets, liabilities, and staffing. These filings form the backbone of the analysis because they capture hospital-level accounting on a consistent basis across time and facilities. From these reports I construct outcome variables such as interest-to-assets, leverage ratios, operating margin, and related measures of financial performance. They also provide detailed information on expenditures, patient volumes, and personnel, which allows for a comprehensive assessment of hospitals' financial health and operating behavior before and after acquisition.

CMS Quality Net

The CMS Quality Net database reports standardized hospital quality indicators, including clinical outcomes, condition-specific mortality, readmission rates, and patient experience scores from the HCAHPS survey. These measures are critical for evaluating whether changes in ownership affect quality of care and patient satisfaction. By linking these indicators to acquisition events, I assess whether private equity entry is associated with shifts in measurable dimensions of hospital performance beyond financial outcomes.

PitchBook

This dataset provides extensive information on private equity deals, including acquisition details, investor characteristics, and deal structures. This data is pivotal for identifying the timeline of acquisitions, categorizing hospitals based on whether they were acquired as part of the first or subsequent deal by a PE firm, and understanding the strategic motivations behind these investments.

American Hospital Association (AHA) Data

The AHA dataset provides detailed information on hospital systems, including ownership changes and system affiliations. This is crucial for tracking the transitions in hospital ownership, particularly identifying PE involvement and analyzing operational changes over time. By linking this data with CMS records, I construct a longitudinal view of hospital performance, enabling robust analysis of ownership transitions and their operational impacts.

Supplementary Data

I also supplement my dataset with information from multiple databases including Preqin, SDC Platinum, Capital IQ, and FactSet, which provide details on both PE and non-PE hospital acquisitions. These additional sources help ensure that any hospital acquisition history missing from PitchBook is captured, allowing for a more comprehensive sequence of each PE firm's hospital acquisition timeline. Additionally, this data is used to construct a robust control sample of never-acquired hospitals.

5.3 Mapping the Sequence of Hospital Roll-ups

A central challenge in analyzing PE-backed hospital acquisitions is to distinguish the strategic role each deal plays within a roll-up. My study introduces a rule-based framework that classifies each deal as a standalone, platform, or add-on, based on its relationship to other deals executed by the same sponsor.

Standalone deals are hospital acquisitions that are not connected to any other investment by the same PE sponsor. These typically reflect isolated, single-asset transactions rather than deliberate roll-up strategies. In contrast, platform deals represent the sponsor's initial hospital acquisition within a chain. Add-ons are subsequent targets that can be linked to a preexisting platform hospital acquired by the same sponsor.

To identify these roles, I link fund-level and portfolio-level datasets and examine the full set of hospital acquisitions by each general partner (GP). Some roll-ups occur entirely within a single fund, while others span multiple funds managed by the same sponsor. This fund-level mapping enables consistent classification even when follow-on acquisitions are financed through successor vehicles.

Add-on identification follows a sequence-based rule. Each hospital acquisition is matched to the earliest preceding platform by the same sponsor using cleaned and tokenized hospital and acquirer names. I compute the Jaccard similarity between these token sets and assign add-on status if the similarity exceeds a threshold of 0.70 and the platform predates the candidate target. This method captures both exact and fuzzy matches in naming, allowing for systematic identification of acquisitions that are likely part of a common roll-up strategy. To ensure accuracy, I perform manual verification of all linkages that pass the threshold and resolve ambiguous cases individually.

Once a linkage is confirmed, the add-on inherits a chain identifier from its platform. This chain structure traces the evolution of each roll-up over time and across funds, and it cleanly separates new platform launches from subsequent portfolio expansion.

A practical complication is that the observed history is finite. I restrict the treated sample to hospitals with at least two post-acquisition years so that outcomes can be tracked beyond the deal date. However, because the panel is right-censored at the end of the observation window, some hospitals that appear as standalones during the sample period could in fact be platforms if subsequent add-ons occur just beyond the horizon. This constitutes a form of misclassification bias induced by right-censoring, where early platforms may be incorrectly labeled as standalones simply because their add-ons fall outside the available data window.

To address this, I implement a bounding robustness check in which I reclassify all standalones as platforms and re-estimate the event-study analyses using only platform and add-on samples (see Appendix Figure A6). The substantive conclusions remain the same.

This framework enables an empirical comparison by deal role rather than by ownership in the aggregate. Distinguishing the stages of a roll-up, from platform formation to add-on expansion, allows the analysis to track the staging of value creation across financing, balance-sheet adjustment, and operations, and to assess whether improvements replicate at later targets within a roll-up.

5.4 Sample Construction

The final dataset consists of 848 unique hospitals acquired by private equity (PE) firms. Among these, 785 participated in roll-up activity by PE sponsors, while 63 hospitals were acquired in one-off stand-alone transactions with no subsequent add-on activity during the study window. Within the 785 roll-up hospitals, 469 are classified as platform acquisitions and 316 as add-on acquisitions executed after a platform had been established by the same sponsor. Among these 316 add-on acquisitions, 233 (approximately 74%) use Mode 2 financing, in which acquisitions are financed internally at the platform level, and 83 (approximately 26%) use Mode 1 financing, in which the fund raises new, externally screened debt. The platform versus add-on designation is based on deal sequencing at the sponsor-hospital level and reflects whether a target initiates the sponsor's presence in the platform system or is later integrated into that platform as an add-on.

This subset of 785 roll-up hospitals, with an explicit distinction between the initial platform and subsequent add-ons, is central for studying how value creation unfolds over the roll-up sequence. At the site level, separating platform from add-on deals allows a test of whether early platform hospital gains are sustained at later-acquired add-on hospitals or whether they fade. In particular, the roll-up subsample allows me to trace balance-sheet adjustments, operating performance, staffing composition, and throughput over time as sponsors expand their portfolios, while the 63 stand-alone acquisitions provide a contrast where no roll-up expansion occurs.

Empirically, I use two complementary samples aligned to the two identification strategies. For the collapsed DID and the dynamic DID (event study), I build a matched panel at the hospital site level around each PE-treated hospital's baseline year (the year prior to acquisition). Matching uses three nearest neighbors by Mahalanobis distance with exact matching on ownership, teaching status, metro status, and Census division. Control hospitals inherit the treated hospital's baseline plus one year as a mock treatment year to align event time. I restrict treated hospitals to first acquisitions in 1998 to 2017 so that at least two pre and two post years are observed, and I form matching pools from pre-acquisition years 1997 to 2016. For the instrumental-variables design, which uses state-year variation in the CPOM Regulation Index, I estimate on the full, unmatched hospital panel with hospital and year fixed effects. Using the full sample preserves the complete set of potential compliers and the full cross-state timing in the instrument, which improves first-stage power and keeps the compliance margin interpretable at the market level. To avoid confounding from pandemic-era disruptions to financing, staffing, utilization, and acquisition timing, I truncate the outcome panel at 2019 and exclude observations from 2020 onward.

Across specifications, control variables are defined consistently. Hospital-level controls include log number of beds, Medicare share, Medicaid share, outpatient share, and case-mix index; county controls include log population, log fair-market rent, and the shares of Black and Asian residents. The working panel spans 1996 to 2019 for outcomes, with pre-periods and post-periods aligned to each hospital's acquisition timing. Stand-alone, platform, and add-on indicators are mutually exclusive by design. Further details on data construction are provided in Appendix C.

5.5 Summary Statistics

In Table 1, I compare baseline characteristics of hospitals acquired by private equity with those never acquired. Statistics are averaged over the three years preceding acquisition to provide a balanced view of pre-acquisition profiles. The goal is not to establish causal drivers but to document unconditional differences that highlight selection patterns and motivate the subsequent analysis.

Financing and balance sheet indicators reveal clear distinctions. PE-acquired hospitals face heavier interest burdens, with higher borrowing rates and wider spreads over LIBOR. Leverage ratios are similar on average, but PE targets rely more on non-interest-bearing liabilities and somewhat less on interest-bearing debt relative to assets. Capital expenditures are modestly lower, consistent with selective investment prior to acquisition. Overall, PE targets enter acquisition with financing structures that imply tighter debt-service pressures and greater exposure to borrowing costs.

Profitability also diverges sharply. Relative to never-acquired hospitals, PE targets report higher return on assets, higher operating income relative to assets, and stronger operating margins. These differences suggest that investors are drawn to hospitals already demonstrating stronger financial performance, which provides a natural starting point for examining how those advantages evolve after acquisition.

Operational outcomes align with these financial patterns. PE-acquired hospitals are substantially larger, with higher total costs, more adjusted discharges, and higher case-mix indices. Even after case-mix adjustment, they report significantly more Medicare discharges and higher Medicare inpatient costs, while non-Medicare prices per discharge are only slightly higher. Costs per adjusted discharge are above those of never-acquired hospitals, reflecting more resource-intensive operations.

Employment and wages scale accordingly. PE-acquired hospitals employ more staff overall, especially in core clinical roles, and pay higher wages across both core and administrative categories. Payroll and staffing intensity therefore match their larger size and higher throughput, implying broader and more expensive labor cost structures prior to acquisition.

Hospital characteristics and demographics round out the picture. PE targets are larger in bed capacity, serve somewhat more Medicare patients and somewhat fewer Medicaid patients, and rely less on outpatient revenue. They also serve communities with higher proportions of Black and Asian patients and operate in areas with slightly higher rental prices, reflecting local economic conditions.

Breakout by deal role. Table 2 reports pre-acquisition means by deal role (stand-alone, platform, add-on) and pairwise differences. Financing gaps stand out: platforms enter with much lower leverage than add-on targets, although their cost of debt is higher. Add-ons lean more heavily on interest-bearing debt, while platforms carry a smaller debt share but at somewhat higher borrowing rates and spreads. These distinctions underscore the financial positioning that underpins each role in the roll-up.

Profitability gaps are clear, with platforms positioned above add-ons but below stand-alones.

The platform–add-on gap is wide and statistically significant, underscoring the stronger pre-acquisition performance of platforms. Operationally, platforms are largest on throughput, followed by add-ons, while stand-alones are smaller on both costs and discharges. Costs per adjusted discharge are highest at stand-alones and lower at platforms and add-ons, consistent with scale advantages. Case-mix and price measures track these differences: stand-alones have the highest CMI, while platforms and add-ons report higher Medicare volumes and costs, with broadly similar non-Medicare prices.

Employment patterns reflect these roles. Add-ons employ more core and administrative staff than platforms, while stand-alones are leaner across categories. Platforms, however, pay higher administrative wages. Hospital characteristics and demographics further differentiate groups: platforms are largest by bed count, stand-alones serve a higher Medicare share, and add-ons more frequently serve Medicaid patients. Outpatient revenue shares are highest for stand-alones, while platforms and add-ons depend more on inpatient activity. Platforms also serve communities with higher Black population shares than stand-alones.

These descriptive statistics underscore that selection into stand-alone, platform, and add-on roles is not random. Platforms combine scale with relatively clean balance sheets, add-ons are weaker in profitability and more debt-reliant, and stand-alones are small but profitable. Recognizing these differences is essential for interpreting post-acquisition outcomes, since part of the variation reflects strategic target selection rather than ownership effects.

The summary statistics therefore show that PE-acquired hospitals differ systematically from never-acquired hospitals and, within the acquired group, by deal role. These unconditional differences highlight the starting advantages of PE targets but should not be interpreted as causal or definitive selection rules. Later, I examine acquisition probability more formally using a logistic regression specification (Table 4), which conditions on hospital and county characteristics and clarifies how leverage and profitability relate to acquisition likelihood across stand-alone, platform, and add-on deals.

6 Empirical Methodology

To address potential confounding factors and baseline differences, as well as to explore potential selection biases observed in pre-acquisition characteristics, I employ a nearest-neighbor matching approach. This methodology is consistent with existing literature on hospital acquisitions (Schmitt, 2017; Prager and Schmitt, 2021; Liu, 2022; Gao et al., 2025), allowing for a robust comparison of post-acquisition outcomes.

Table 1 reveals systematic differences in financial health, profitability, operations, and demographic targeting between PE-acquired hospitals and others, suggesting that PE firms may selectively target hospitals based on specific pre-acquisition characteristics. This selective targeting could potentially skew comparisons of post-acquisition outcomes. In addition to creating a mathced control group for the PE acquired hospitals, to account for the variations across different PE acquisition sequences, I create separate matched control samples for each category: Stand-alone, Platform and Add-on. This distinction is essential, as each acquisition sequence likely follows unique strategic objectives and operates under different conditions.

By constructing control samples for each acquisition category, the matching approach ensures that comparisons between PE-acquired hospitals and their counterparts are based on hospitals with similar pre-acquisition characteristics. This process effectively mitigates potential selection bias arising from baseline differences and provides a more nuanced understanding of how the roll-up strategy impacts hospital outcomes. Distinguishing between initial platform acquisitions and subsequent add-on deals reveals how PE firms balance distinct operational objectives across their portfolio. Moreover, decomposing the add-on category reveals the critical role of financing structure: the divergence between externally screened Mode 1 add-ons and internally funded Mode 2 add-ons highlights the varied incentives that drive underperformance within the add-on strategy.

Additionally, nearest-neighbor matching not only balances characteristics across groups but also sheds light on the criteria likely used by PE firms when selecting hospital targets, such as revenue potential or financial health. This method offers a clearer perspective on the real impact of PE acquisitions on hospital performance and the broader implications of their roll-up strategies.

6.1 Construction of Matched Sample

The matched control group is constructed by excluding from the pool any hospitals that experienced an acquisition during the observation period. For each treated hospital, up to three nearest-neighbor controls are identified using the Mahalanobis distance metric. Matching covariates include hospital characteristics such as the log of total beds, the share of Medicare and Medicaid discharges, the ratio of outpatient charges, and pre-acquisition profitability. To further improve comparability, matches are restricted to hospitals with the same for-profit status, teaching status, census division, and metropolitan status as the treated hospital. These restrictions ensure that matched comparisons reflect not only similar regional and urban–rural environments but also comparable ownership form and institutional role. Matching is performed with replacement, allowing the same hospital to serve as a control for multiple treated observations when it provides the closest fit across covariates.

The effectiveness of the matching procedure is evaluated by calculating standardized differences between treated and control hospitals for the covariates included in the matching algorithm. Figure 1 presents these standardized differences before and after matching. The figure demonstrates that matching substantially reduces imbalances across the targeted variables, with differences that were large in the raw sample shrinking considerably in the matched design. This provides clear evidence that the matching process achieves a closer alignment between PE-acquired hospitals and their matched controls.

Table 3 reports descriptive statistics for the full matched dataset, pooling PE-acquired hospitals with their matched controls. The table presents means, standard deviations, and percentiles for a wide range of financial, operational, staffing, and demographic variables. Because the table is pooled, it does not directly display treated–control differences, but instead offers a detailed overview of the distributions of hospital characteristics in the analytic sample used for the post-matching analysis. Taken together with Figure 1, which documents the reduction in standardized differences, the table provides a comprehensive picture of the dataset that serves as the basis for the subsequent difference-in-differences and event study estimations.

In sum, the construction of the matched sample addresses the unconditional imbalances highlighted earlier in Tables 1 and 2. By creating a set of control hospitals that closely resemble PE-acquired hospitals on key observable characteristics, the matching design strengthens the credibility of the empirical strategy and provides a more appropriate counterfactual for assessing post-acquisition changes in hospital outcomes.

6.2 Selection Across Acquisition Types

While the Mahalanobis matching procedure aims to balance hospital characteristics such as total beds, Medicare and Medicaid shares, outpatient intensity, and profitability, it is important to acknowledge that multi-deal PE firms may shift their selection strategies across acquisition rounds. Figure 1, particularly panels (c) and (d), shows that hospitals acquired in platform deals exhibit more extreme standardized differences across several variables than those acquired as add-ons.

For example, prior to matching, the standardized difference in Medicaid share is approximately 0.4 for platform acquisitions but only 0.1 for add-ons. The outpatient share shows a similar pattern, with a difference of about -0.4 for platform targets versus -0.2 for add-ons. The log of total beds differs by about 0.4 for platform targets, compared to 0.2 for add-ons. These gaps suggest that platform hospitals tend to have more distinct operational profiles relative to their matched controls, whereas add-ons are more similar to the control group.

One interpretation is that PE firms prioritize hospitals with more extreme operational characteristics or greater potential in their initial acquisitions, then shift toward more complementary targets in follow-on deals. Alternatively, the firm's selection strategy may evolve as it gains experience, becoming more systematic or opportunistic over time.

To further explore these selection dynamics and formally test H1, I estimate the likelihood of PE acquisition using a logistic regression model that decomposes financial performance into capital structure, core operating profitability, and bottom-line returns:

$$\Pr(\texttt{Acquired}_{i,t} = 1) = \Lambda\left(\alpha + \beta_1 \texttt{Lev}_{i,t-1} + \beta_2 \texttt{Margin}_{i,t-1} + \beta_3 \texttt{ROA}_{i,t-1} + \mathbf{X}'_{i,t}\gamma + \epsilon_{i,t}\right) \tag{1}$$

where $\Lambda(\cdot)$ denotes the logistic function, and $\mathbf{X}_{it}$ includes hospital and county-level controls. I estimate this model separately for all PE acquisitions and by deal type: standalone, platform, and add-on. Furthermore, to test whether the financing source itself is determined by target characteristics, I decompose the add-on sample into Mode 1 (Fund-Financed) and Mode 2 (Platform-Financed) acquisitions.

This specification isolates the financial determinants of target selection with greater precision. Including both Operating Margin and ROA allows the model to distinguish between targets with strong unit economics (high operating margin) versus those with net inefficiencies or overhead bloat (low ROA), a common profile for private equity turnarounds. Concurrently, the Leverage coefficient tests the "Financial Anchor" hypothesis (H1). If platforms are selected to bear the debt capacity of the roll-up, they should exhibit a negative coefficient on leverage (unused debt capacity). Finally, estimating separate models for Mode 1 and Mode 2 tests the mechanism of internal capital markets: if platform financing acts as a funding source for marginal projects, Mode 2 acquisitions should be associated with financially constrained or highly levered targets that might otherwise be rejected by external lenders.

6.3 Baseline Model

6.3.1 Pooled Effects Across Deal Types

I estimate the effect of private equity acquisition on hospital outcomes with a difference-in-differences design that separates deals by role in the roll-up sequence and by post-event horizon. Let i index hospitals and t years. Each treated hospital is classified as stand-alone (a one-off acquisition not part of a roll-up), platform (the first deal in a multi-hospital roll-up), or add-on (a subsequent acquisition by the same sponsor). Event time is $g_{i,t}$, measured in years relative to the first PE targeting year. For each outcome block, I form two non-overlapping post windows: short run $[0, 4]$ and long run $[5, 8]$. I then estimate the short-run and long-run specifications separately on the corresponding analysis samples.

For a generic post window $w \in \{\mathrm{SR}, \mathrm{LR}\}$, the estimating equation is

$$\begin{aligned} Y_{i,t} = {} & \phi_S^w \big(\texttt{Stand-alone}_i \times \mathrm{Post}_{i,t}^w\big) + \phi_P^w \big(\texttt{Platform}_i \times \mathrm{Post}_{i,t}^w\big) + \phi_A^w \big(\texttt{Add-on}_i \times \mathrm{Post}_{i,t}^w\big) \\ & + \mathbf{X}_{i,t}' \boldsymbol{\beta} + \alpha_i + \mu_{m(i)} + \kappa_{g_{i,t}} + \varepsilon_{i,t}. \end{aligned} \tag{2}$$

where $\mathrm{Post}_{i,t}^{\mathrm{SR}} = 1\{0 \leq g_{i,t} \leq 4\}$ for the short run and $\mathrm{Post}_{i,t}^{\mathrm{LR}} = 1\{5 \leq g_{i,t} \leq 8\}$ for the long run. The vector $\mathbf{X}_{i,t}$ includes hospital controls: log(beds), Medicare share, Medicaid share, outpatient share, and case-mix index (CMI); and county controls: log(population), log(fair-market rent), Black share, and Asian share.

Hospital fixed effects α_i absorb time-invariant heterogeneity. Match-group fixed effects $\mu_{m(i)}$ absorb differences across matched sets. Event-time fixed effects $\kappa_{g_{i,t}}$ flexibly control for shocks common to all units at the same relative time g. Standard errors are two-way clustered by hospital and by match group to allow for serial correlation within hospitals and cross-sectional dependence within matched sets. This is important because treatment is assigned at the hospital level and comparisons are organized within matched cohorts.[1]

The coefficients ϕ_d^w for $d \in \{S, P, A\}$ capture average treatment effects by deal type within window w. The platform parameters ϕ_P^w identify the anchor-deal channel. The add-on parameters ϕ_A^w capture the incremental contribution of subsequent targets once folded into the platform. Stand-alone parameters ϕ_S^w are reported for completeness but interpreted cautiously given smaller samples.

6.3.2 Add-on mechanism: Mode and collateral screening specifications

To test the core mechanism implied by Axelson et al. (2009), namely, that external debt markets screen projects based on contractible collateral, while internally financed add-ons bypass this discipline, I estimate add-on specific DID specifications that isolate heterogeneity by financing mode and target asset tangibility.

All specifications in this subsection are estimated on the *add-on sample*, i.e., treated hospitals that entered a PE roll-up as subsequent acquisitions and their matched controls. As in the baseline specifications, each regression includes the hospital-level controls $\mathbf{X}_{i,t}$, hospital fixed effects α_i, match-group fixed effects $\mu_{m(i)}$, and event-time fixed effects $\kappa_{g_{i,t}}$. Standard errors are two-way clustered by hospital and match group.

Mode (binary) specification. To estimate the average post-acquisition effect for add-ons

[1] Results are robust to clustering at the hospital level only.

financed under each mode, I estimate

$$
\begin{aligned}
Y_{i,t} = \gamma_0 &+ \gamma_1\big(\texttt{Mode1}_i \times \texttt{Post}_{i,t}\big) + \gamma_2\big(\texttt{Mode2}_i \times \texttt{Post}_{i,t}\big) \\
&+ \mathbf{X}'_{i,t}\boldsymbol{\beta} + \alpha_i + \mu_{m(i)} + \kappa_{g_{i,t}} + \varepsilon_{i,t},
\end{aligned} \tag{3}
$$

where $\texttt{Mode1}_i$ and $\texttt{Mode2}_i$ are indicators for Fund-financed (Mode 1) and Platform-financed (Mode 2) add-ons respectively. Coefficients γ_1 and γ_2 capture the average post-acquisition effect for each financing mode and correspond to the estimates reported in Table 7.

Continuous heterogeneity by collateral. To examine whether asset tangibility mitigates agency costs in internally financed deals, I estimate a triple-interaction specification that interacts the financing-mode indicators with the post variable and a continuous measure of pledgeable collateral, $\texttt{Collateral}_i$ (defined as the centered natural logarithm of total fixed assets):

$$
\begin{aligned}
Y_{i,t} = \delta_0 &+ \delta_1\big(\texttt{Mode1}_i \times \texttt{Post}_{i,t}\big) + \delta_2\big(\texttt{Mode2}_i \times \texttt{Post}_{i,t}\big) \\
&+ \delta_3\big(\texttt{Mode1}_i \times \texttt{Post}_{i,t} \times \texttt{Collateral}_{i,t}\big) + \delta_4\big(\texttt{Mode2}_i \times \texttt{Post}_{i,t} \times \texttt{Collateral}_{i,t}\big) \\
&+ \mathbf{X}'_{i,t}\boldsymbol{\beta} + \alpha_i + \mu_{m(i)} + \kappa_{g_{i,t}} + \varepsilon_{i,t}.
\end{aligned} \tag{4}
$$

Coefficients δ_3 and δ_4 capture how the post effect for each financing mode varies with the target's asset tangibility. Theory implies that Mode 2 underperformance should be concentrated in low-collateral targets where external screening would have been unavailable (low $\text{Collateral}_{i,t}$), and attenuated when high tangibility restores discipline. Empirical results are reported in Table 8 and visualized in Figure 2, which plots the total marginal effects ($\delta_1 + \delta_3 \cdot \text{Collateral}$ and $\delta_2 + \delta_4 \cdot \text{Collateral}$) across the distribution of fixed assets.

Relation to the main DID. The add-on specifications are a targeted mechanism test nested inside the broader DID framework described in (2). Reporting the add-on regressions in their own subsection clarifies that these estimates address a distinct question (how internal vs. external financing at the add-on stage mediates post-acquisition outcomes), while preserving the comparability of the identifying assumptions, covariates, and fixed-effect structure used throughout the paper.

6.4 Instrumenting PE Acquisitions Using CPOM Reforms

To strengthen the causal interpretation of post-acquisition effects within roll-up sequences, I implement an instrumental-variables (IV) strategy that exploits cross-state changes in the Corporate Practice of Medicine (CPOM) doctrine. CPOM rules restrict non-physician corporations from employing physicians or controlling clinical practice, and easing these rules reduces legal and transactional frictions for private-equity entry and integration. I use the CPOM Regulation Index from Liu (2022), a state-year measure in which higher values indicate more permissive CPOM.[2]

Because the research question concerns sequencing within roll-ups, I estimate first stages separately by deal role, distinguishing stand-alone, platform, and add-on targets, rather than treating private-equity entry as a single, homogeneous event. Let $D^g_{it} \in \{0,1\}$ indicate whether hospital i in year t is exposed through deal role $g \in \{\texttt{PE target}, \texttt{Stand-alone}, \texttt{Platform}, \texttt{Add-on}\}$. Denote by $\texttt{CPOM}_{s(i),t}$ the CPOM index for the state of hospital i. The first stage for role g is

$$D^g_{it} = \pi_g\, \texttt{CPOM}_{s(i),t} + \mathbf{X}'_{it}\Gamma_g + \alpha_i + \tau_t + u^g_{it}, \tag{5}$$

where $\mathbf{X}_{it}$ includes hospital controls (log beds, Medicare share, Medicaid share, outpatient share, case-mix index) and county controls (log population, log fair-market rent, Black share, Asian share). I include hospital fixed effects α_i and year fixed effects τ_t, and estimate (5) separately for each deal role g. Standard errors are clustered by provider. Kleibergen–Paap statistics are reported with the first stage in Table 9.

Given (5), I estimate role-specific IV models that replace the endogenous indicator with its fitted value. For outcome Y_{it}, for example ROA, OI/TA, and financial leverage, the second stage is

$$Y_{it} = \beta_g\, \widehat{D}^g_{it} + \mathbf{X}'_{it}\delta + \alpha_i + \tau_t + \varepsilon_{it}, \tag{6}$$

estimated separately for $g \in \{\texttt{PE target}, \texttt{Stand-alone}, \texttt{Platform}, \texttt{Add-on}\}$. I use LIML with a Fuller(1) correction, and cluster standard errors by provider. The coefficients β_g are local average treatment effects for hospitals whose acquisition status at deal role g is shifted by CPOM.

6.5 Dynamic Effects Model

For key outcomes, I complement the baseline short– and long–run estimates with an event–study specification that traces dynamic responses around the acquisition year. To align with staggered timing and to keep composition stable, I estimate separate event studies within each matched sample for: all PE targets, stand-alone targets, platform targets, and add-on targets. Within each sample, I keep the matched groups that contain at least one treated hospital, retain

[2] The CPOM Regulation Index in Liu (2022) codifies state permissiveness based on statutes, attorney-general opinions, and case law. Higher values denote more lenient CPOM.

never-treated hospitals in those groups as controls, and require at least three pre-treatment observations per hospital. I implement strict binning of event time to the interval $[-3, +6]$, and I omit the year immediately prior to treatment as the reference period.

Let K_{it} denote the event time (year relative to the first PE targeting year for hospital i), and define $F_{\ell,it} = \mathbf{1}\{K_{it} = -\ell\}$ for $\ell \in \{2, 3\}$ and $L_{\ell,it} = \mathbf{1}\{K_{it} = \ell\}$ for $\ell \in \{0, \ldots, 6\}$, with tail bins at -3 and $+6$. The event–study regression for outcome Y_{it} is

$$Y_{it} = \sum_{\ell=2}^{3} \theta_{-\ell} F_{\ell,it} + \sum_{\ell=0}^{6} \theta_{\ell} L_{\ell,it} + \mathbf{X}'_{it}\beta + \alpha_i + \kappa_{\Delta t(i)} + \mu_{m(i)} + \varepsilon_{it}, \tag{7}$$

where α_i are hospital fixed effects, $\kappa_{\Delta t(i)}$ are event–time fixed effects based on years relative to acquisition (implemented via `yeargap`), and $\mu_{m(i)}$ are match–ID fixed effects. The control vector $\mathbf{X}_{it}$ includes hospital controls (log beds, Medicare share, Medicaid share, outpatient share, case–mix index) and county controls (log population, log fair–market rent, Black share, Asian share). Estimation uses analytical weights when available and equals one otherwise, and standard errors are two–way clustered by hospital and match–ID. The omitted category is $K_{it} = -1$, so the coefficients $\theta_{-\ell}$ and θ_{ℓ} are relative to the year before treatment. Inference on pre–treatment coefficients $\{\theta_{-3}, \theta_{-2}\}$ provides a direct check of parallel trends inside each matched sample.

All dynamic specifications mirror the baseline in covariates and fixed effects, and the same sample construction ensures that pre– and post–period comparisons are drawn within the matched groups defined for each deal type. Results are visualized as coefficient paths with pointwise confidence intervals; they are broadly consistent with the windowed DID estimates reported earlier.[3]

7 Main Results

7.1 Staged Selection: Establishing the Financial Anchor

The validity of the staged roll-up mechanism relies on the premise that platforms and add-ons play distinct roles within the portfolio. To test this, I examine the selection determinants across acquisition types using the logistic regression model specified in Equation 1.

The estimates reported in Table 4 reveal a selection strategy based on financial capacity and turnaround potential. First, I document that private equity firms target hospitals with a specific "turnaround" profile characterized by positive Operating Margins but low or negative

[3]Estimates are robust to using the interaction–weighted estimator of Sun and Abraham (2020) with the same matched samples.

ROA. The coefficients for Operating Margin are positive and significant for both Platforms ($\beta = 1.33$) and Add-ons ($\beta = 1.08$), while ROA coefficients are negative. This suggests that sponsors look for targets with strong clinical unit economics where value can be unlocked by fixing the inefficient cost structure that weighs down the bottom line.

Second, sponsors distinguish between platforms and add-ons based on Leverage. Platforms are selected for low leverage ($\beta = -0.50$), maximizing the pledgeable collateral necessary to secure the syndicated credit facilities that fund the strategy. In contrast, add-ons are selected for high leverage ($\beta = 0.29$). These targets fit the profile of "distressed cash cows" that generate clinical margin but are weighed down by existing debt, requiring the platform's balance sheet for recapitalization.

Crucially, I decompose the add-on sample to address the concern that add-ons are simply inferior assets or "lemons" passed over during the platform phase. Columns 5 and 6 reveal that financing mode determines the risk profile of the target. Selection for Mode 1, or fund-financed acquisitions, is financially unremarkable. These targets show no significant selection on Operating Margin and only marginal selection on leverage and ROA ($p < 0.10$). This implies that the pool of potential add-ons includes viable, standard targets that meet external lending criteria. In contrast, the "distressed" profile is concentrated entirely in the Mode 2, or platform-financed, group. Mode 2 targets are selected for very high Operating Margins ($\beta = 1.66$) but deep negative ROA ($\beta = -1.53$) and significant leverage.

This divergence suggests that the internal capital market is not passive but active. It is used specifically to absorb complex, highly levered turnarounds that external lenders would likely reject. The existence of standard Mode 1 targets confirms that the subsequent underperformance of Mode 2 is driven by this aggressive selection strategy rather than a fundamental exhaustion of investment opportunities.

7.2 Baseline Results

7.2.1 Financing Advantages and Cost of Capital

I begin by establishing the financing environment at the time of acquisition. Hypothesis H2 predicts that platform acquisitions trigger an immediate repricing of debt liabilities due to fresh underwriting against collateral, whereas add-ons, which are funded via existing credit facilities, do not receive a deal-specific repricing advantage.

To test this, I construct two measures from hospital cost reports. First, the effective rate on interest-bearing debt (r_{it}^{IB}), defined as interest expense divided by total interest-bearing debt (mortgages, notes, and unsecured loans). Second, the market-adjusted spread (s_{it}), defined as r_{it}^{IB} minus the three-month LIBOR rate, which isolates borrower-specific credit terms from aggregate funding conditions.

Table 5 presents difference-in-differences estimates for these outcomes. Consistent with H2, platforms experience a sharp and statistically significant reduction in financing costs immediately following the deal. In the short run (years 0–4), the effective rate on interest-bearing debt falls by 1.7 percentage points, and the LIBOR-adjusted spread narrows by approximately 170 basis points. This effect is concentrated at deal close, consistent with a recapitalization event that resets the cost of capital for the platform anchor.

In contrast, add-on acquisitions show no such advantage. In fact, their effective borrowing costs increase moderately in the short run: spreads widen by approximately 230 basis points. This pattern is consistent with the institutional structure of roll-ups, where add-ons are funded as incremental draws on the platform's existing facility. Because add-ons do not trigger a fresh underwriting event for the whole group, they do not inherit the repricing benefit observed at the platform stage. Furthermore, upfront transaction fees, such as an original issue discount and arranger fees, associated with the incremental draw are often amortized through interest expense, mechanically lifting the measured effective rate in the early post-acquisition years. These results establish a clear asymmetry: platforms enter the portfolio with a significant financing advantage (lower cost of capital), while add-ons enter under tighter local financial conditions.

7.2.2 Divergence in Post-Acquisition Profitability

Having established the financing environment, I next examine the evolution of operating performance. Table 6 reports estimates for Return on Assets (ROA), Operating Margin, and Operating Income over Assets (OI/TA).

The results reveal a stark divergence consistent with H3. Platform hospitals exhibit robust value creation that builds over time. In the short run (years 0–4), platform ROA increases by 6.2 percentage points. By the long run (years 5–8), this advantage widens to 15.3 percentage points, supported by a 5.9 percentage point increase in operating margins. This trajectory suggests that the initial financing advantage described above acts as a bridge to longer-term operational improvements.

Add-on hospitals follow the opposite trajectory. On average, add-ons experience a statistically significant decline in operating income over assets of 5.4 percentage points in the short run, with no significant recovery in the long run. The ROA estimates for add-ons are similarly negative or statistically indistinguishable from zero across specifications. This creates a puzzle: despite being part of the same platform strategy and theoretically benefiting from the platform's scale, add-on targets fail to generate value on average. The aggregate null result for add-ons, however, may mask heterogeneity driven by the financing source.

7.2.3 The Screening Mechanism: Mode 1 vs. Mode 2

To resolve the add-on underperformance puzzle, I decompose the add-on sample by financing mode. As outlined in the conceptual framework, Mode 1 (Fund-Financed) deals require new external debt and face lender screening, while Mode 2 (Platform-Financed) deals utilize internal capacity and bypass deal-specific underwriting.

Table 7 presents the results of this decomposition. The estimates show that the aggregate underperformance of add-ons is driven entirely by the internally financed group. For Mode 1 add-ons, the coefficient on Post-Acquisition ROA is statistically indistinguishable from zero (-0.019, $t = -0.59$). This suggests that when external lenders screen the transaction, they successfully filter out value-destroying projects. While these deals do not generate the massive alpha of the initial platform, they preserve value. In contrast, Mode 2 add-ons exhibit a negative and statistically significant coefficient (-0.056, $t = -2.32$), indicating a decline in ROA of approximately 5.6 percentage points. This divergence supports the Almeida and Wolfenzon (2006) hypothesis that internal capital markets in private equity facilitate investment in lower-quality or marginal projects that would not be funded by external markets.

7.2.4 Testing the Collateral Channel

If the failure of Mode 2 is driven by a lack of external screening, theories of financial contracting suggest that asset tangibility should mitigate this agency cost. Axelson et al. (2009) argue that lenders screen based on contractible collateral. Therefore, the absence of a lender should be most damaging when collateral is low (and "soft" information dominates), whereas high levels of tangible assets can substitute for monitoring by anchoring the valuation.

I test this prediction (H4) by interacting the financing mode with the target's total fixed assets (centered log value). The results are reported in Table 8 and visualized in Figure 2. The interaction terms reveal a striking heterogeneity within Mode 2 deals. The interaction between Mode 1 and fixed assets is close to zero and statistically insignificant, indicating that fund-financed deals face uniform screening standards regardless of target size or collateral. Banks impose discipline across the distribution. However, the interaction term for Mode 2 is positive and highly significant (0.071, $t = 4.54$), indicating that the performance of internally financed deals is highly sensitive to collateral.[4]

[4] Because the collateral variable is centered log fixed assets, the main effect of -0.052 corresponds to the impact on a hospital with mean fixed assets. The interaction coefficient of 0.071 implies that a one-unit increase in log fixed assets (equivalent to a hospital roughly 2.7 times larger) improves ROA by 7.1 percentage points. For a small target at the 25th percentile of the distribution (approx. \$19 million in fixed assets, or 0.72 log points below the mean), the predicted effect is $-0.052 + (0.071 \times -0.72) \approx -10.3\%$. Conversely, for a large target at the maximum of the sample (approx. \$260 million, or 1.88 log points above the mean), the predicted effect is $-0.052 + (0.071 \times 1.88) \approx +8.1\%$. This demonstrates that value destruction is concentrated in small,

Figure 2 plots the marginal effects to illustrate the economic magnitude of this mechanism. For Mode 2 targets with low collateral (left side of the distribution, roughly 2 standard deviations below the mean), ROA declines by nearly 10 percentage points. This confirms that value destruction is concentrated in "unscreened" targets where agency costs are highest. However, for Mode 2 targets with high collateral (right side of the distribution), the marginal effect turns positive. These results provide direct empirical support for the governance role of debt. When the "leash" of external debt is removed (Mode 2), managers overinvest in low-quality, low-collateral targets. However, when assets are highly tangible, the contractibility of the asset itself restores discipline, allowing the platform to execute value-creating consolidation even without direct lender oversight.

7.2.5 Operational Consequences

The divergence in financial performance and screening discipline documented above has tangible operational consequences. Consistent with the view that platforms act as operational anchors, Table A1 shows that platforms achieve efficiency gains through "within-rule" revenue strategies. Post-acquisition, platforms exhibit a significant increase in their Case-Mix Index (CMI) and Medicare discharges without a corresponding increase in commercial prices. This suggests that the value creation at the platform level is driven by the scale to invest in sophisticated revenue-cycle infrastructure (coding and documentation) rather than by price negotiation power.

In contrast, the value destruction observed in add-ons appears to be contractionary. Table A2 shows that add-on acquisitions are associated with significant reductions in both clinical and administrative staff, yet these cuts do not translate into improved operating margins. This pattern is consistent with the agency view of Mode 2 financing: internally funded, unscreened acquisitions may rely on blunt cost-cutting measures to justify deal models that lacked fundamental value-creation potential. Finally, I find no consistent evidence that these financial and operational shifts come at the expense of clinical quality (Figure A2), though patient satisfaction scores show modest declines (Figure A3).

7.3 IV Results: CPOM Regulation Index

To address potential endogeneity in the decision to enter specific markets, I employ an instrumental variables (IV) strategy using the Corporate Practice of Medicine (CPOM) Regulation Index (Liu, 2022). Table 9 reports the first-stage estimates. The index proves to be a relevant instrument for platform entry ($F = 8.78$), but is statistically weak for Add-on acquisitions.

low-collateral targets, while high asset tangibility restores positive performance even in the absence of external screening.

This divergence in instrument relevance strongly reinforces the "Anchor" mechanism proposed in this paper. Strict CPOM regulations create high fixed costs for establishing the initial corporate medical structure, such as employing physicians and integrating clinical operations. A lenient regulatory environment is therefore a critical precondition for establishing the platform, which serves as the legal and operational anchor. However, once this compliant structure is established, subsequent Add-on acquisitions can be folded into the existing licensed entity, bypassing the initial regulatory hurdle. Just as add-ons bypass the financial screening of external debt markets (Mode 2), they also appear to bypass the regulatory friction of market entry. Consequently, the IV strategy effectively isolates the causal impact of the platform strategy but cannot identify the local average treatment effect for add-ons.

Turning to the second stage in Table 10, I estimate the causal effect of platform acquisition on operating performance. Across all specifications, ranging from hospital fixed effects to the full battery of county and hospital controls, instrumented platform exposure leads to a large and statistically significant increase in ROA. In the preferred specification with full controls, the coefficient for platform targets is positive and significant ($\beta = 1.027$, $t = 3.33$).

A short comment on magnitudes is useful. Because the endogenous regressors are binary indicators, the two-stage procedure scales reduced-form effects by the first-stage slope,

$$\widehat{\beta}_{\text{2SLS}} = \frac{\widehat{\beta}_{\text{RF}}}{\widehat{\pi}},$$

so that modest first-stage coefficients convert small reduced-form changes in acquisition probabilities into the effect of a full transition from non-PE to PE ownership. The estimates are therefore local to hospitals whose platform status is influenced by CPOM variation.

IV results confirm that the performance advantage of platforms is causal and not merely an artifact of cherry-picking. Combined with the baseline findings, this suggests that the private equity model succeeds at the formation stage by creating profitable, compliant anchors, but falters during the internal financing-driven expansion into add-ons.

7.4 Dynamic Effects Model

To validate the timing of these effects and assess the parallel trends assumption, I estimate an event study centered on the acquisition year with three pre-acquisition years and six post-acquisition years. The model uses the matched sample and control set applied throughout the baseline analysis. Exact event-time indicators are constructed relative to the deal close, with the year prior to acquisition ($t = -1$) omitted as the reference group. Across all outcomes, the pre-period coefficients are statistically indistinguishable from zero and show no systematic trend, supporting the validity of the research design.

Figure 3 plots the dynamic effects for the primary financial and performance outcomes. The results for debt financing costs confirm the mechanism underlying H2: platform hospitals experience an immediate and sharp reduction in the market-adjusted spread (IB - LIBOR) at $t = 0$. The spread declines by over 200 basis points relative to controls in the first year and remains significantly negative throughout the post-period. This pattern is consistent with a structural repricing event where the platform's cost of capital is reset at origination. In contrast, add-ons show flat, noisy spreads with no evidence of repricing at any horizon, confirming that they do not receive a fresh underwriting advantage upon entry.

The profitability estimates illustrate the subsequent divergence in value creation (H3). For platforms, profitability gains materialize with a lag relative to the financing shock. Return on Assets (ROA) is stable in the first year but begins to rise in $t + 2$, reaching a statistically significant advantage of 7 to 10 percentage points by years 3 through 6. This lag suggests that the initial financing advantage ($t = 0$) provides the fiscal space for subsequent operational restructuring. Add-ons, however, display no systematic or sustained profitability improvements. Their coefficients hover near zero, reinforcing the conclusion that the platform's value creation engine does not scale to subsequent targets.

Figure 4 plots the operational outcomes. The results corroborate the divergence between sophisticated within-rule revenue strategies and blunt contraction. Platforms successfully activate within-rule levers, with the Case-Mix Index (CMI) rising significantly by the second post-acquisition year and stabilizing at a higher level. This indicates a sustained shift toward higher-acuity coding and service lines, allowing platforms to optimize reimbursement under existing payment formulas. Add-ons show no comparable shift in revenue complexity.

The labor dynamics further distinguish the two strategies. Platforms execute a targeted restructuring: they reduce administrative staff early ($t = 1$) while preserving or modestly increasing core clinical headcount, consistent with the centralization of back-office functions to support growth. Add-ons, by contrast, rely on persistent and sizable reductions in core clinical staff, often exceeding 20%, without offsetting gains in efficiency or margins. This contractionary pattern aligns with the agency view of Mode 2 financing: absent the screening discipline that selects for viable growth opportunities, internally financed add-ons revert to blunt cost-cutting that fails to generate value.

Collectively, the event-time profiles delineate a clear sequence of value creation and destruction. The process begins with a financing shock at the platform stage, where collateral quality secures an immediate cost-of-capital advantage. This advantage anchors subsequent operational investments, including coding upgrades and administrative streamlining, that drive long-run profitability. When the strategy extends to add-ons, this sequence breaks: without a new financing shock or external screening, the operational playbook devolves into clinical contraction and value stagnation.[5]

7.5 Robustness Checks

I conduct two robustness exercises designed to ensure that the dynamic effects documented above are not artifacts of how the sample is constructed or how acquisitions are classified. The first concern is that baseline estimates might be influenced by uneven observation windows across hospitals: if treated hospitals drop out before or after acquisition, the estimated event-time profiles could partially reflect sample attrition rather than true post-acquisition dynamics. To address this, I re-estimate the event studies on a strictly balanced panel that requires hospitals to be observed in every year from three years before to six years after acquisition. The second concern is potential misclassification bias created by the finite observation window: some acquisitions that appear as stand-alone during the sample period may in fact be early platforms whose add-ons occur just beyond the horizon. To bound this problem, I reclassify all stand-alone acquisitions as platforms and restrict the sample to platform and add-on hospitals. Together, these checks probe whether the baseline results hinge on data structure or definitional choices, rather than reflecting genuine treatment effects.

First, I re-estimate the event-study models on a strictly balanced panel that requires hospitals to be observed in every event year from three years before to six years after acquisition. The resulting profiles, reported in Appendix Figure A5, remain consistent with the baseline estimates. Platforms continue to show early debt repricing in spreads and profitability improvements, while add-ons primarily exhibit persistent reductions in core clinical staff absent profitability gains. The overall shape and direction of effects are unchanged, reinforcing the interpretation of the baseline dynamics.

Second, I reclassify all stand-alone acquisitions as platforms and restrict the sample to platform and add-on hospitals. The corresponding event-time profiles, shown in Figure A6, likewise align with the baseline results. Platforms still display repricing of debt costs and profitability upswing with modest administrative staffing reductions, while add-ons continue to exhibit disproportionate and persistent declines in core clinical headcount with muted profitability changes. This exercise rules out the possibility that the platform–add-on contrast is an artifact of misclassifying censored early platforms as stand-alone.

[5]Results for the pooled PE sample and stand-alone hospitals are reported in Appendix Figure A4.

8 Conclusion

This paper challenges the idea of a uniform, repeatable private equity playbook in the hospital industry. By reframing PE ownership as a financial sequence, the analysis demonstrates that value creation is fundamentally determined by governance design at the outset. The core challenge is that the initial platform investment, which is rigorously screened and financially optimized, creates the borrowing capacity for subsequent add-on acquisitions that systematically bypass external market discipline.

The central message is that the success of the roll-up is conditional on maintaining financial scrutiny. Three sets of results anchor this conclusion. First, I show that the selection of the platform is structurally engineered to serve as a financial anchor. Sponsors systematically target hospitals with low leverage and high gross margins to maximize pledgeable collateral, securing the scalable credit facilities necessary to fund future, more levered add-ons. IV estimates confirm that the resulting performance advantage is causal: overcoming regulatory barriers to entry (CPOM) leads to robust improvements in profitability, demonstrating that platform value creation is real and not merely an artifact of favorable target selection.

Second, the divergence in post-acquisition performance validates the collateral screening mechanism. While platforms convert their financing advantage into sustained ROA gains, subsequent add-on acquisitions generally fail to replicate this success. Decomposing this result reveals that the failure is specific to the financing structure: externally screened (Mode 1) add-ons preserve value, whereas internally financed (Mode 2) add-ons suffer significant value destruction. Crucially, this Mode 2 underperformance is not uniform; it is concentrated entirely in low-collateral targets. By interacting the financing mode with asset tangibility, I show that the absence of external monitoring manifests as acute agency costs precisely when asset values are difficult to verify. Conversely, high asset tangibility acts as a substitute for lender screening, restoring discipline even in the absence of a new underwriter. This confirms that the roll-up strategy falters specifically when the financing mechanism allows investment in low-quality projects without the guardrail of collateral.

Third, the operational consequences follow this divergence. Platforms utilize financing gains to fund within-rule strategies, such as CMI optimization and targeted administrative restructuring, while commercial prices remain stable. In contrast, add-ons are absorbed without new underwriting, show persistent, sizeable reductions in core clinical staff, and revert to blunt cost-cutting, consistent with the agency view of internal capital: when removed from external discipline, capital flows toward contractionary strategies that fail to generate fundamental value.

The implications extend to practice and policy. The results provide novel empirical evidence for the governance role of external debt markets, demonstrating that the discipline provided by debt financing is essential to preserving asset quality. For investors and lenders, the evidence explains why underwriting must focus on platform formation, where collateral, pricing, and integration capacity are set. For regulators and payers, treating private equity ownership as a single category risks missing the locus of action. Disclosure mandates should distinguish platforms from add-ons, requiring the reporting of facility size, initial debt pricing, and covenants at origination, and tracking the evolution of the capital structure post-closing. Ultimately, the evidence clarifies why the private equity roll-up playbook in the hospital industry is difficult to scale: the roll-up model works when financing conditions enforce discipline, but breaks when internal capital markets allow that discipline to erode.

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Table 1: Pre-Acquisition Hospital Statistics: PE-Acquired vs Never-Acquired

This table reports hospital-level means prior to the first private equity acquisition (PE-Acquired) and for hospitals that are never acquired (Never-Acquired), before any matching of control groups. For PE-Acquirer, each hospital contributes its average over years $t = -3$ to $t = -1$ relative to its first PE deal; Never-Acquired hospitals contribute their mean over all observed years. Column (1)–(2) reports differences tested with unequal-variance t tests (Welch). Significance levels are denoted by *, **, and *** for the 10%, 5%, and 1% levels.

Variable	(1) **PE-Acquired**	(2) **Never-Acquired**	**(1)–(2)**
Financing and Balance Sheet			
Rate on IB Debt	0.066	0.059	0.006*
Spread (IB–3m)	0.040	0.028	0.012***
Leverage Ratio	0.554	0.538	0.016
Capex/Assets	0.065	0.071	-0.006***
IB Debt/Assets	0.173	0.175	-0.002
Non-IB Liabilities/Assets	0.371	0.329	0.042**
IB Debt Share	0.289	0.316	-0.027*
Profitability			
Operating Margin	0.013	-0.220	0.232***
Operating Income/Assets (OI/TA)	0.053	-0.109	0.162***
ROA	0.072	0.015	0.057***
Operations and Revenues			
Log(Cost per Adj. Discharge)	9.142	9.026	0.116***
Log(Total Cost)	17.580	17.153	0.426***
Log(Adjusted Discharges)	8.363	8.079	0.284***
Case-Mix and CMI Adjusted			
CMI	1.465	1.345	0.120***
Log(Medicare Discharges, CMI-adj)	7.772	6.808	0.964***
Log(Medicare Inpatient Costs, CMI-adj)	16.482	15.506	0.976***
Log(Non-Medicare Price, CMI-adj)	8.592	8.471	0.121***
Employment and Wages			
Log(Total Employment)	5.782	5.697	0.085*
Log(Core Employment)	3.629	3.134	0.495***
Log(Admin Employment)	3.606	3.450	0.155**
Log(Total Salary)	16.803	16.506	0.297***
Log(Core Wage)	8.713	7.961	0.753***
Log(Admin Wage)	11.054	10.853	0.201***
Hospital Characteristics and Demographics			
Total Beds	133.156	113.382	19.774***
% Medicare	0.472	0.449	0.023***
% Medicaid	0.100	0.109	-0.009*
% Outpatient	0.350	0.431	-0.081***
% Asian	0.034	0.030	0.004**
% Black	0.147	0.121	0.026***
1BR Rent (County,$)	630.336	603.180	27.156***
Hospital Count	848	5642	
Deal Count	269		

Table 2: Pre-Acquisition Hospital Statistics by PE acquisition type

Hospitals are grouped by their acquisition type under private equity ownership: Stand-alone, Platform, and Add-on. For each hospital, variables are averaged over the three years prior to its first PE deal (years $t = -3$ to $t = -1$). Columns (1)–(2), (2)–(3), and (1)–(3) report differences tested with unequal-variance t tests (Welch). Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Variable	(1) **Stand-alone**	(2) **Platform**	(3) **Add-on**	**(1)–(2)**	**(2)–(3)**	**(1)–(3)**
Financing and Balance Sheet						
Rate on IB Debt	0.073	0.084	0.063	-0.011	0.021**	0.011
Spread (IB–3m)	0.064	0.063	0.032	0.001	0.031***	0.032*
Leverage Ratio	0.790	0.181	0.576	0.609***	-0.395***	0.214
Capex/Assets	0.089	0.064	0.061	0.025	0.002	0.027
IB Debt/Assets	0.220	0.148	0.200	0.072	-0.052**	0.020
Non-IB Liabilities/Assets	0.564	0.361	0.390	0.203	-0.029	0.174
IB Debt Share	0.308	0.268	0.323	0.040	-0.055	-0.015
Profitability						
Operating Margin	-0.003	0.045	-0.030	-0.047	0.075***	0.027
OI/TA	0.159	0.107	-0.037	0.052	0.144***	0.196***
ROA	0.223	0.098	0.009	0.125**	0.089***	0.214***
Operations and Revenues						
Log(Avg.Cost/Adj.Discharge)	9.451	9.141	9.137	0.310**	0.004	0.314**
Log(Total Cost)	16.896	17.752	17.494	-0.855***	0.258***	-0.597***
Log(Adjusted Discharges)	7.431	8.507	8.340	-1.076***	0.167	-0.909***
Case-Mix and CMI Adjusted						
CMI	1.722	1.467	1.442	0.255	0.025	0.280*
Log(Medicare Discharges, CMI-adj)	6.976	7.771	7.834	-0.795	-0.063	-0.858*
Log(Medicare Inpatient Costs, CMI-adj)	16.077	16.475	16.524	-0.398	-0.049	-0.447
Log(Non-Medicare Price, CMI-adj)	8.604	8.687	8.460	-0.083	0.228***	0.144
Employment and Wages						
Log(Core Employment)	2.734	3.550	3.833	-0.816*	-0.284**	-1.100**
Log(Admin Employment)	3.817	3.451	3.832	0.366	-0.380***	-0.015
Log(Core Wage)	8.479	8.560	9.000	-0.082	-0.440	-0.522
Log(Admin Wage)	11.009	11.122	10.948	-0.113	0.174***	0.062
Hospital Characteristics and Demographics						
Total Beds	72.401	143.634	130.436	-71.233***	13.198	-58.035***
%Medicare	0.520	0.478	0.454	0.042	0.024	0.065
%Medicaid	0.038	0.098	0.116	-0.060***	-0.017*	-0.077***
%Outpatient	0.218	0.351	0.371	-0.134***	-0.020	-0.153***
%Asian	0.047	0.038	0.027	0.009	0.012***	0.021***
%Black	0.126	0.157	0.136	-0.030*	0.021*	-0.009
1BR Rent (County,$)	744.217	631.453	608.075	112.763***	23.379	136.142***
Hospital Count	63	469	316			
Deal Count	27	65	199			

Table 3: Summary Statistics For the Matched Sample

This table presents the summary statistics for the key variables utilized in this study. The sample includes observations from both target and control hospitals during the three years preceding and following their acquisition. The matched sample is constructed by pairing each PE-owned hospital with up to three control hospitals using the optimal Mahalanobis method.

Variable	Obs	Mean	P25	P50	P75	SD
Financing and Balance Sheet						
Rate on IB Debt	1,803	0.063	0.035	0.053	0.077	0.042
Spread (IB–3m)	1,803	0.043	0.012	0.037	0.061	0.045
Leverage Ratio	7,278	0.428	0.152	0.485	0.786	0.601
Capex/Assets	6,385	0.070	0.030	0.052	0.089	0.057
IB Debt/Assets	6,267	0.160	0.000	0.005	0.265	0.228
Non-IB Liabilities/Assets	6,243	0.349	0.091	0.245	0.498	0.346
IB Debt Share	5,435	0.291	0.000	0.118	0.578	0.322
Profitability						
Operating Margin	10,332	0.021	-0.049	0.031	0.127	0.213
OI/TA	8,696	0.051	-0.065	0.029	0.177	0.316
ROA	8,729	0.087	-0.023	0.056	0.181	0.267
Operations and Revenues						
Log(Avg.Cost/Adj.Discharge)	7,754	9.056	8.686	8.978	9.319	0.553
Log(Total Cost)	8,391	17.737	16.770	17.805	18.676	1.203
Log(Adjusted Discharges)	8,219	8.725	7.881	8.992	9.733	1.312
Case-Mix and CMI Adjusted						
CMI	7,035	1.513	1.278	1.485	1.671	0.358
Log(Medicare Discharges, CMI-adj)	7,033	7.887	7.225	8.076	8.780	1.265
Log(Medicare Inpatient Costs, CMI-adj)	7,032	16.620	15.883	16.810	17.560	1.262
Log(Non-Medicare Price, CMI-adj)	6,926	8.619	8.370	8.664	8.914	0.539
Employment and Wages						
Log(Core Employment)	8,569	3.927	2.965	4.213	5.166	1.629
Log(Admin Employment)	7,490	3.864	3.223	3.912	4.595	1.159
Log(Core Wage)	8,455	9.532	10.263	10.735	11.092	3.335
Log(Admin Wage)	7,313	10.992	10.764	10.989	11.195	0.602
Hospital Characteristics and Demographics						
Total Beds	8,880	146.618	49.000	108.000	202.000	143.520
%Medicare	10,382	0.453	0.304	0.419	0.588	0.211
%Medicaid	10,382	0.102	0.013	0.067	0.156	0.114
%Outpatient	8,116	0.383	0.260	0.394	0.523	0.207
%Asian	9,607	0.035	0.010	0.024	0.046	0.039
%Black	9,607	0.153	0.048	0.109	0.214	0.142
1BR Rent (County,$)	9,607	655.224	515.000	622.000	744.000	210.789

Table 4: Logit Regression Results: Probability of PE Acquisition

This table presents logistic regression estimates of the probability of acquisition. The dependent variable is an indicator equal to one in the acquisition year. Columns distinguish between all PE acquisitions, subsets defined by deal type (Standalone, Platform, Add-on), and financing mode within add-ons (Mode 1 vs. Mode 2). Key independent variables include lagged leverage, lagged operating margin (Net Patient Revenue – Total Operating Expense / Net Patient Revenue), and lagged ROA (Net Income / Total Assets). Standard errors are clustered at the hospital level. z-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Dependent variable: Acquisition Indicator					
	(1) PE Target	(2) Standalone	(3) Platform	(4) Add-on	(5) Mode 1	(6) Mode 2
Leverage (*L*1.)	−0.306***	0.058	−0.502***	0.291**	0.254*	0.318**
	(−6.04)	(0.52)	(−9.58)	(2.48)	(1.85)	(1.98)
Operating Margin (*L*1.)	0.949***	−0.114	1.327***	1.084***	0.496	1.662***
	(2.81)	(−0.25)	(2.66)	(3.13)	(1.36)	(3.44)
ROA (*L*1.)	−0.844***	1.145	−0.615*	−1.407***	−1.276*	−1.527***
	(−3.03)	(1.44)	(−1.85)	(−3.50)	(−1.66)	(−3.42)
Observations	80,195	79,752	80,016	79,931	79,788	79,835
Pseudo R^2	0.036	0.183	0.063	0.031	0.039	0.036
Hospital Controls	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y

Table 5: Cost of Debt and Spread After PE Acquisition

This table reports difference-in-differences (DID) estimates of the effect of PE acquisition on measures of debt pricing. Each row shows the coefficient on a post-acquisition indicator interacted with the deal type, i.e., *Stand-alone* (a target acquired that is not part of a roll-up), *Platform* (a new platform acquisition), and *Add-on* (a target added to an existing platform). Columns report effects in the first four years after PE entry and in years five to eight. Outcomes are: Cost of Debt, defined as interest expense divided by interest-bearing liabilities; and Spread (vs 3-month LIBOR), defined as the difference between the effective borrowing rate and the 3-month LIBOR benchmark. The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, case mix index); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Cost of Debt		Spread	
Post-Deal Window	[0,4]	[5,8]	[0,4]	[5,8]
(1) Stand-alone	0.0134	−0.0387**	0.0049	−0.0651***
	(0.39)	(−1.99)	(0.15)	(−3.35)
(2) Platform	−0.0169**	−0.0023	−0.0165**	−0.0006
	(−2.02)	(−0.16)	(−2.13)	(−0.04)
(3) Add-on	0.0184**	0.0036	0.0234***	0.0092
	(2.45)	(0.34)	(2.78)	(0.69)
Observations	3,976	3,981	3,976	3,981
Adj. R^2	0.478	0.467	0.504	0.494
H_0^{A}: (1) = (2)	0.389	0.124	0.519	0.123
H_0^{B}: (2) = (3)	0.001	0.735	0.000	0.735
H_0^{C}: (1) = (3)	0.885	0.056	0.580	0.056
Hospital Controls	Y	Y	Y	Y
County Controls	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y

Table 6: Profitability After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on hospital profitability outcomes. Each row shows the coefficient on a post-acquisition indicator interacted with the deal type, i.e., *Stand-alone* (a target acquired that is not part of a roll-up), *Platform* (a new platform acquisition), and *Add-on* (a target added to an existing platform). Columns report effects in the first four years after PE entry and in years five to eight. Outcomes are: operating margin, operating income over total assets (OI/TA), and return on assets (ROA). The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, case mix index); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Operating Margin		OI/TA		ROA	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.030	-0.076	0.050	-0.026	0.100	-0.026
	(-0.40)	(-0.97)	(0.46)	(-0.26)	(0.94)	(-0.30)
(2) Platform	0.002	0.059***	0.035*	0.133***	0.062***	0.153***
	(0.13)	(3.77)	(1.71)	(5.27)	(3.06)	(6.60)
(3) Add-on	-0.005	0.013	-0.054**	0.002	-0.026	0.013
	(-0.35)	(0.64)	(-2.24)	(0.08)	(-1.19)	(0.48)
H_0^A: (1) = (2)	0.681	0.094	0.889	0.124	0.724	0.048
H_0^B: (2) = (3)	0.682	0.030	0.002	0.000	0.002	0.000
H_0^C: (1) = (3)	0.736	0.273	0.342	0.788	0.241	0.669
Adj. R^2	0.421	0.419	0.426	0.452	0.452	0.477
Observations	11,374	11,849	11,374	11,849	11,374	11,849
Hospital Controls	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y

Table 7: Return on Assets after Add-on Acquisition by Mode

This table presents the results of a DID analysis estimating the impact of Private Equity (PE) add-on acquisitions on hospital Return on Assets (ROA), distinguishing the effect by the financing mode of the transaction. The analysis is conducted on a balanced panel of hospital-year observations. The sample includes all hospitals acquired by a PE firm as an add-on and their matched control hospitals. The key independent variables are interaction terms: Mode $1 \times$ Post, which indicates hospitals acquired via Fund-Financed (Mode 1) add-ons in the post-acquisition period, and Mode $2 \times$ Post, which indicates hospitals acquired via Platform-Financed (Mode 2) add-ons in the post-acquisition period. The values in parentheses are t-statistics, derived from robust standard errors clustered at the Hospital and Match-ID level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

	Dependent variable: ROA			
	(1) Baseline	(2) +Event FE	(3) +County Ctrls	(4) +Hosp Ctrls
Mode 1 × Post	0.003	−0.019	−0.023	−0.019
	(0.10)	(−0.61)	(−0.46)	(−0.59)
Mode 2 × Post	−0.030	−0.055**	−0.059**	−0.056**
	(−1.23)	(−2.16)	(−2.03)	(−2.32)
Adj. R^2	0.442	0.450	0.452	0.454
Observations	13,624	13,624	13,624	13,624
Hospital Controls	N	N	N	Y
County Controls	N	N	Y	Y
Event-time FE	N	Y	Y	Y
Hospital FE	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y

Table 8: Heterogeneous Effects of Financing Mode on Add-on Profitability

This table presents the results of a difference-in-differences (DID) analysis with a continuous interaction term estimating the heterogeneous impact of Private Equity (PE) add-on acquisitions on hospital Return on Assets (ROA). The analysis distinguishes effects along two dimensions: the financing mode of the add-on acquisition (Mode 1: Fund-Financed; Mode 2: Platform-Financed) and the hospital's collateral capacity, proxied by the log of total fixed assets. The key parameters are the triple interaction terms (Mode $\times$ Post $\times$ ln(Fixed Assets)), which capture how the post-acquisition effect varies with the level of collateral available to the hospital under each financing mode. The analysis is conducted on a balanced panel of hospital-year observations with available fixed-asset data. Values in parentheses are t-statistics based on robust standard errors clustered at both the Hospital and Match-ID levels. $^{p} < 0.10$, $p < 0.05$, $p < 0.01$.

	Dependent variable: ROA			
	(1) Baseline	(2) +Event FE	(3) +County Ctrls	(4) +Hosp Ctrls
Mode 1 × Post	0.004	−0.018	−0.021	−0.017
	(0.14)	(−0.59)	(−0.70)	(−0.55)
Mode 2 × Post	−0.025	−0.051**	−0.055***	−0.052***
	(−1.40)	(−2.57)	(−2.79)	(−2.65)
Mode 1 × Post × ln(Fixed Assets)	0.008	0.014	0.012	0.015
	(0.28)	(0.49)	(0.43)	(0.52)
Mode 2 × Post × ln(Fixed Assets)	0.074***	0.077***	0.072***	0.071***
	(4.71)	(4.96)	(4.61)	(4.54)
Adj. R^2	0.447	0.454	0.456	0.457
Observations	13,624	13,624	13,624	13,624
Hospital Controls	N	N	N	Y
County Controls	N	N	Y	Y
Event-time FE	N	Y	Y	Y
Hospital FE	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y

Note: ln(Fixed Assets) is centered: $\ln(\text{Fixed Assets}) - \overline{\ln(\text{Fixed Assets})}$.

Table 9: First-Stage Regression: CPOM Regulation Index and PE Acquisition Types

Each column reports the first-stage regression of the indicated PE acquisition indicator on the CPOM Regulation Index (higher = more lenient). All specifications include hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, CMI), county controls (log population, log fair market rent, Black share, Asian share), plus fixed effects for hospital and year. "KP F-stat" is the Kleibergen–Paap rk Wald F statistic (compare to Stock–Yogo critical values). "LM p-value" is from the Kleibergen–Paap rk LM test of underidentification. Standard errors are clustered by provider. t-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

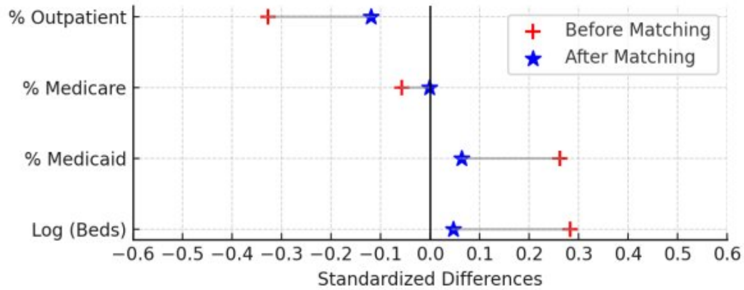
	Dependent variable: Acquisition Indicator			
	(1) PE Target	(2) Stand-alone	(3) Platform	(4) Add-on
CPOM Index	0.0123**	0.0005	0.0093***	0.0025
	(3.10)	(0.35)	(2.96)	(1.15)
KP F-stat (Wald F)	9.60	0.12	8.78	1.33
LM p-value (under-ID)	0.002	0.725	0.004	0.249
Adj. R^2	0.818	0.417	0.874	0.771
Observations	15,519	15,519	15,519	15,519
Hospital Controls	Y	Y	Y	Y
County Controls	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y

Table 10: Second-Stage IV Estimates: ROA

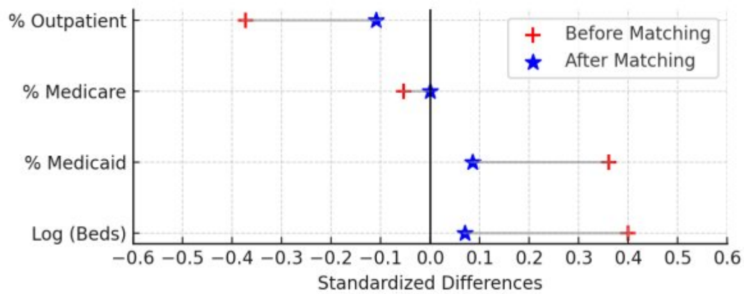
Second-stage IV estimates using the CPOM Regulation Index as an instrument; first-stage results are reported in Table 9. Each panel reports results from a separate regression using the unmatched sample of hospitals. Dependent variable is: *return on assets (ROA)*. Hospital controls (log beds, Medicare share, Medicaid share, outpatient share, CMI), county controls (log population, log fair market rent, Black share, Asian share), hospital fixed effects, and year fixed effects are included depending on the specification as indicated in the table. Standard errors are clustered at the provider level. t-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Dependent variable: ROA			
	(1) Hosp FE	(2) + Year FE	(3) + County controls	(4) + Hospital controls
Panel A: PE Target				
PE	0.509***	0.881***	0.752***	0.759***
	(5.83)	(4.01)	(3.92)	(4.42)
Hospital controls	N	N	N	Y
County controls	N	N	Y	Y
Year FE	N	Y	Y	Y
Hospital FE	Y	Y	Y	Y
Observations	17,143	17,143	15,700	15,700
Panel B: Platform Target				
Platform	0.808***	1.126**	1.011**	1.027**
	(4.07)	(3.12)	(3.04)	(3.33)
Hospital controls	N	N	N	Y
County controls	N	N	Y	Y
Year FE	N	Y	Y	Y
Hospital FE	Y	Y	Y	Y
Observations	17,143	17,143	15,700	15,700

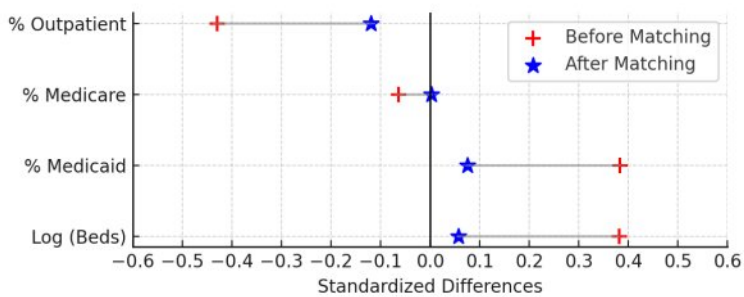
Figure 1. Balance Test after Mahalanobis Matching



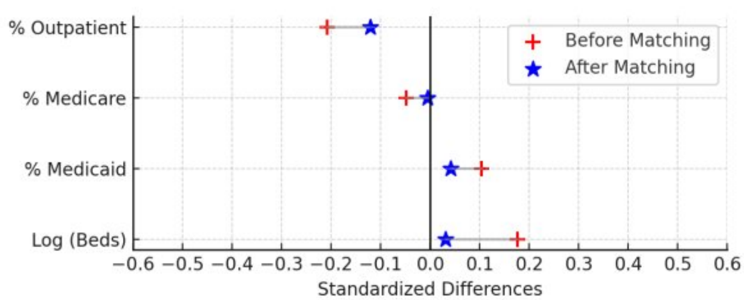
(a) *Overall*



(b) *Stand-alone*



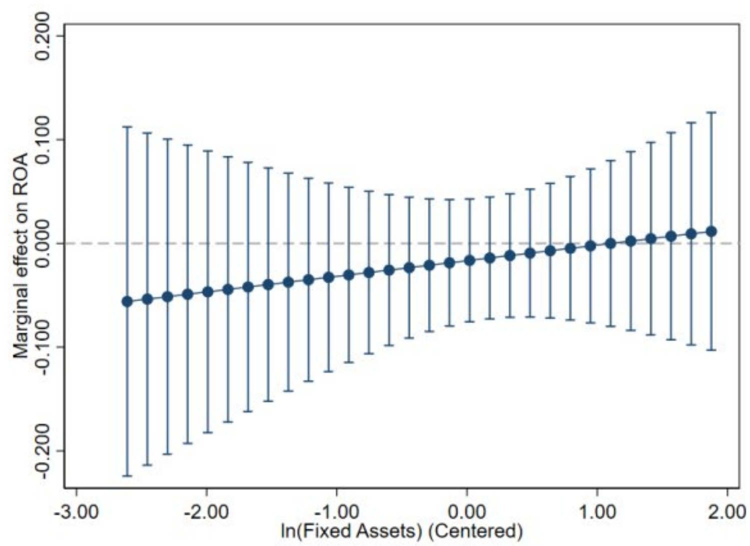
(c) *Platform*



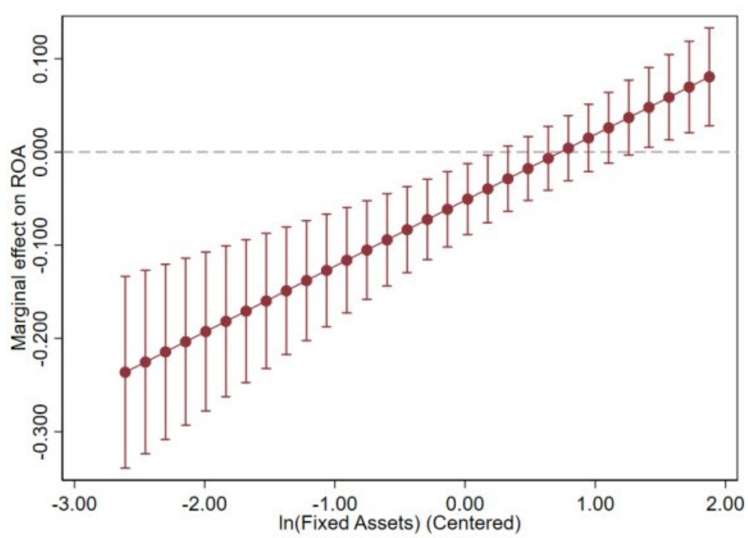
(d) *Add-on*

Figure 2. Heterogeneous Marginal Effects by Financing Mode

This figure presents the estimated marginal effects of Private Equity (PE) add-on acquisitions on hospital Return on Assets (ROA), separately for Fund-Financed (Mode 1) and Platform-Financed (Mode 2) transactions. Heterogeneity is evaluated along a continuous measure of collateral capacity, proxied by centered ln(Fixed Assets). The plots show the post-acquisition treatment effect across the distribution of collateral, with 95% confidence intervals based on standard errors two-way clustered at the hospital and match-group levels. All specifications underlying these marginal effects include hospital controls, county controls, hospital fixed effects, match-group fixed effects, and event-time fixed effects.



(a) Mode 1 (Fund-Financed)

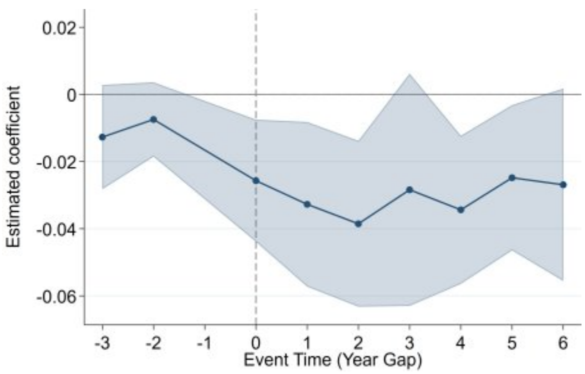


(b) Mode 2 (Platform-Financed)

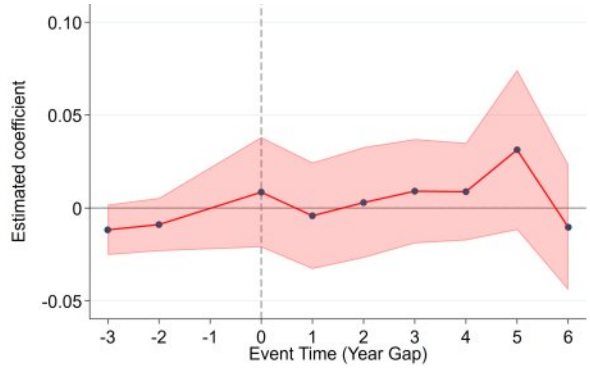
Figure 3. Dynamic Effects on Financing and Profitability

This figure plots event-study coefficients with two-way clustered standard errors (provider and match group) for five outcomes: return on assets (ROA), debt financing spread (IB - 3m), Medicare case-mix index (CMI), core employment, and administrative employment. All specifications include hospital controls (log beds, Medicare share, Medicaid share, outpatient share), county controls (log population, log FMR, Black share, Asian share), and fixed effects for provider, year-gap, and match group. The omitted event time is $F1$ (one year before).

Outcome: Debt Financing Spread (IB - 3m)

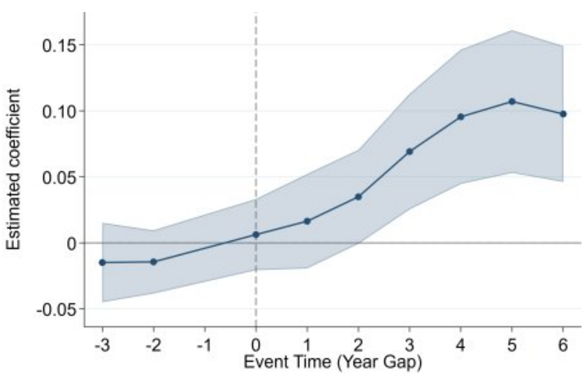


(a) Platform

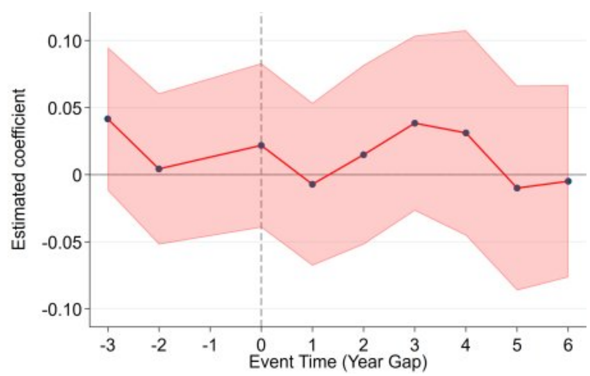


(b) Add-on

Outcome: Return on Assets (ROA)



(c) Platform

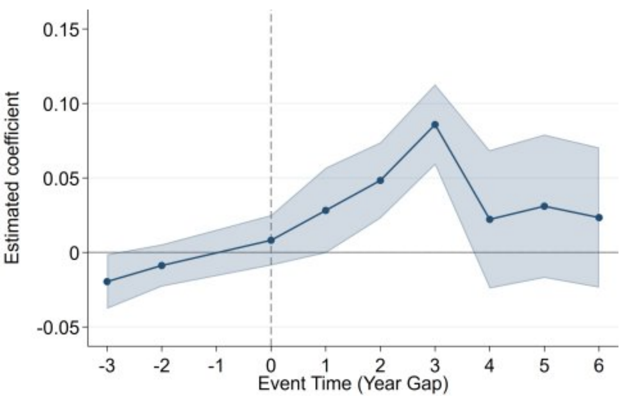


(d) Add-on

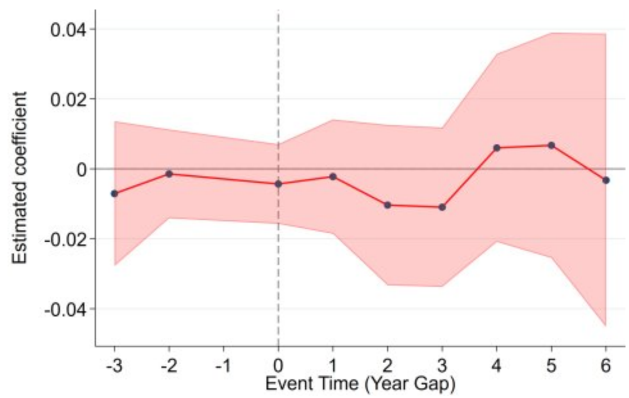
Figure 4. Dynamic Effects on Operational Outcomes

This figure plots event-study estimates for operational outcomes: the Case-Mix Index (CMI), Core Clinical Employment (logs), and Administrative Employment (logs). Specifications are consistent with the event studies in Figure 3.

Outcome: Medicare Case-Mix Index (CMI)

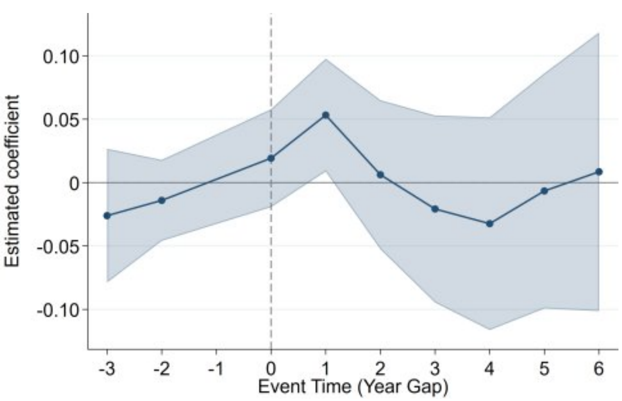


(a) Platform

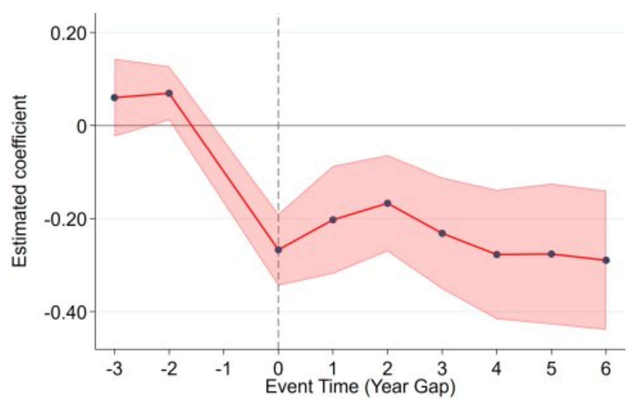


(b) Add-on

Outcome: Core Clinical Employment (Logs)

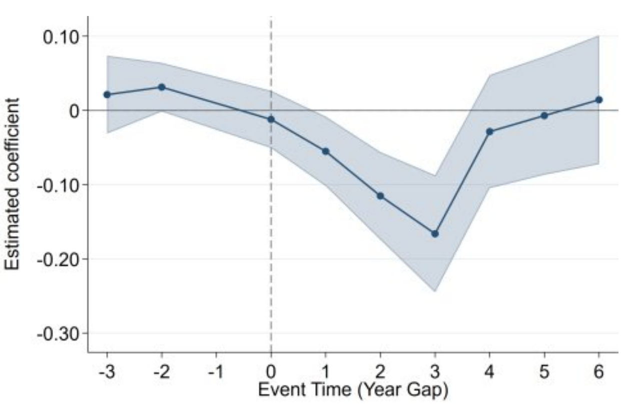


(c) Platform

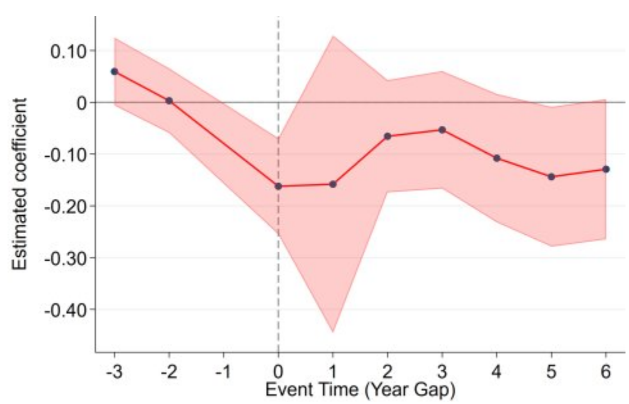


(d) Add-on

Outcome: Administrative Employment (Logs)



(e) Platform



(f) Add-on

Appendix A: Tables and Figures

Table A1: Case-Mix and Medicare Outcomes After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on case mix and Medicare outcomes. Each row shows the coefficient on a post-acquisition indicator interacted with the deal type, i.e., *Stand-alone* (a target acquired that is not part of a roll-up), *Platform* (a new platform acquisition), and *Add-on* (a target added to an existing platform). Columns report effects in the first four years after PE entry and in years five to eight. Outcomes are: log case-mix index (CMI), log Medicare discharges, log Medicare inpatient cost, and log non-Medicare price per discharge. The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, profitability); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

			CMI Adjusted					
	Log(CMI)		Log(Med. Disc.)		Log(Med. Inpat. Cost)		Log(Non-Med. Price)	
Post-Deal Window	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]
(1) Stand-alone	−0.040	−0.019	−0.214	0.015	−0.185	−0.001	0.132	−0.113
	(−0.94)	(−0.52)	(−0.79)	(0.10)	(−0.73)	(−0.01)	(0.67)	(−1.10)
(2) Platform	0.018**	0.034***	0.042	0.211***	0.074***	0.177***	−0.008	−0.057
	(2.25)	(4.61)	(1.46)	(4.68)	(2.81)	(4.42)	(−0.28)	(−1.38)
(3) Add-on	−0.025***	−0.040***	−0.155***	−0.107*	−0.172***	−0.175***	−0.028	−0.069
	(−2.71)	(−3.72)	(−3.40)	(−1.81)	(−4.64)	(−3.09)	(−0.60)	(−0.95)
H_0^A: (1) = (2)	0.1882	0.1518	0.3430	0.2004	0.3072	0.3773	0.4842	0.6012
H_0^B: (2) = (3)	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.6854	0.8747
H_0^C: (1) = (3)	0.7379	0.5717	0.8338	0.4372	0.9613	0.3971	0.4282	0.7073
Observations	8,420	8,904	8,420	8,904	8,420	8,904	8,420	8,904
Adj. R^2	0.789	0.831	0.960	0.957	0.965	0.963	0.693	0.676
Hospital Controls	Y	Y	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y	Y	Y

Table A2: Hospital Staffing and Wages After PE Acquisition

This table reports DID estimates of employment and wage outcomes following PE hospital acquisitions. Panel A shows effects on employment levels for core clinical and administrative staff, and Panel B on average hourly wages for those categories. Columns report effects in the first four years after PE entry and in years five to eight. The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. Regressions include hospital fixed effects, year fixed effects, and hospital and county controls. Standard errors are clustered at the hospital level. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Employment				
	Log(Emp Core)		Log(Emp Admin)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.310*	0.080	-0.116	-0.085
	(-1.82)	(0.33)	(-0.66)	(-0.61)
(2) Platform	0.154***	0.127**	-0.259***	-0.157***
	(3.56)	(2.29)	(-5.82)	(-3.21)
(3) Add-on	-0.250***	-0.292***	-0.210***	-0.141**
	(-4.08)	(-3.17)	(-3.74)	(-2.05)
H_0^A: (1) = (2)	0.008	0.847	0.424	0.615
H_0^B: (2) = (3)	0.000	0.000	0.437	0.813
H_0^C: (1) = (3)	0.739	0.144	0.616	0.714
Adj. R^2	0.891	0.877	0.777	0.787
Observations	11,395	11,878	11,395	11,878
Panel B: Hourly Wage				
	Log(Wage Core)		Log(Wage Admin)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.048	-0.168**	-0.024	-0.017
	(-0.53)	(-2.04)	(-0.57)	(-0.21)
(2) Platform	-0.201***	-0.117***	0.159***	0.169***
	(-5.61)	(-3.05)	(9.35)	(7.79)
(3) Add-on	0.029	0.011	0.054	0.015
	(0.79)	(0.22)	(1.33)	(0.50)
H_0^A: (1) = (2)	0.093	0.513	0.000	0.022
H_0^B: (2) = (3)	0.000	0.016	0.012	0.000
H_0^C: (1) = (3)	0.408	0.045	0.168	0.705
Adj. R^2	0.540	0.536	0.476	0.575
Observations	11,395	11,878	11,395	11,878
Hospital Controls	Y	Y	Y	Y
County Controls	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y

Table A3: Balance Sheet Structure, Investment, and Liquidity After PE Acquisition

This table reports DID estimates of the effect of private equity (PE) acquisition on balance sheet outcomes. Each row shows the coefficient on a post-acquisition indicator interacted with the deal type, i.e., *Stand-alone* (a target acquired that is not part of a roll-up), *Platform* (a new platform acquisition), and *Add-on* (a target added to an existing platform). Columns report effects in the first four years after PE entry and in years five to eight. Outcomes are: leverage (Liab/TA), capital expenditures to total assets (Capex/TA), and cash holdings to total assets (Cash/TA). The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, case mix index); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Leverage		Capex/TA		Cash/TA	
Post-Deal Window	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]
(1) Stand-alone	0.043	0.377*	0.036*	0.039	−0.000	0.034
	(0.31)	(1.71)	(1.72)	(1.45)	(−0.02)	(0.92)
(2) Platform	−0.157***	−0.275***	0.017***	0.034***	−0.002	0.003
	(−3.20)	(−4.50)	(3.76)	(6.22)	(−0.75)	(0.77)
(3) Add-on	0.136***	0.033	0.011	0.005	−0.011**	−0.015**
	(2.65)	(0.43)	(1.52)	(0.62)	(−2.32)	(−2.10)
Observations	10,415	10,938	10,415	10,938	10,415	10,938
Adj. R^2	0.628	0.640	0.061	0.103	0.554	0.555
H_0^A: (1) = (2)	0.156	0.004	0.369	0.000	0.483	0.102
H_0^B: (2) = (3)	0.000	0.000	0.616	0.000	0.000	0.000
H_0^C: (1) = (3)	0.528	0.146	0.292	0.198	0.528	0.146
Hospital Controls	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y

Table A4: Capital Structure and Liability Mix After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on hospital capital structure and liability mix. Each row shows the coefficient on a post-acquisition indicator interacted with the deal type, i.e., *Stand-alone* (a target acquired that is not part of a roll-up), *Platform* (a new platform acquisition), and *Add-on* (a target added to an existing platform). Columns report effects in the first four years after PE entry and in years five to eight. Outcomes are: interest-bearing debt to total assets (IB Debt/TA), non-interest-bearing liabilities to total assets (NIBL/TA), and the share of interest-bearing debt in total liabilities (IB Debt/TL). The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, case mix index); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	IB Debt/TA		NIBL/TA		IB Debt/TL	
Post-Deal Window	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]
(1) Stand-alone	−0.092	0.088	−0.025	0.140	−0.038	0.049
	(−1.23)	(0.55)	(−0.21)	(0.65)	(−0.29)	(0.24)
(2) Platform	0.001	0.079**	0.044	−0.124**	−0.003	0.133***
	(0.05)	(2.08)	(1.23)	(−2.37)	(−0.11)	(3.04)
(3) Add-on	−0.021	−0.016	0.114***	0.045	−0.037	−0.032
	(−0.72)	(−0.40)	(2.82)	(0.83)	(−0.97)	(−0.59)
H_0^A: (1) = (2)	0.229	0.957	0.572	0.236	0.797	0.687
H_0^B: (2) = (3)	0.553	0.070	0.171	0.016	0.485	0.014
H_0^C: (1) = (3)	0.361	0.522	0.257	0.666	0.998	0.547
Observations	9,902	9,982	9,902	9,982	9,902	9,982
Adj. R^2	0.453	0.423	0.528	0.491	0.453	0.429
Hospital Controls	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y

Table A5: Balance Sheet Levels After PE Acquisition

This table reports difference-in-differences (DID) estimates of the effect of PE acquisition on balance sheet levels. Each row shows the coefficient on a post-acquisition indicator interacted with the deal type, i.e., *Stand-alone* (a target acquired that is not part of a roll-up), *Platform* (a new platform acquisition), and *Add-on* (a target added to an existing platform). Columns report effects in the first four years after PE entry and in years five to eight. Outcomes are total liabilities, long-term liabilities, equity, and assets, all expressed in billions of dollars. The rows labeled "(1) = (2)" and "(2) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, case mix index); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Liabilities ($ bn)		LT Liabilities ($ bn)		Equity ($ bn)		Assets ($ bn)	
Post-Deal Window	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]
(1) Stand-alone	−0.021	−0.001	−0.013	0.014	−0.044**	−0.107***	−0.039**	−0.056**
	(−1.61)	(−0.12)	(−1.30)	(1.13)	(−2.48)	(−3.09)	(−2.57)	(−2.72)
(2) Platform	−0.030***	−0.056***	−0.027***	−0.042***	0.016	0.066***	−0.028***	−0.023**
	(−5.44)	(−7.33)	(−5.79)	(−6.59)	(1.14)	(3.36)	(−4.32)	(−2.39)
(3) Add-on	−0.019***	−0.036***	−0.018***	−0.031***	−0.072***	−0.082***	−0.052***	−0.064***
	(−4.10)	(−4.18)	(−4.59)	(−3.88)	(−5.97)	(−4.86)	(−6.97)	(−6.46)
Observations	11,128	11,596	11,128	11,596	11,128	11,596	11,128	11,596
Adj. R^2	0.767	0.748	0.735	0.711	0.759	0.758	0.856	0.843
H_0^A: (1) = (2)	0.509	0.000	0.207	0.000	0.002	0.000	0.473	0.128
H_0^B: (2) = (3)	0.073	0.038	0.080	0.184	0.000	0.000	0.001	0.000
H_0^C: (1) = (3)	0.904	0.006	0.675	0.001	0.136	0.499	0.454	0.737
Hospital Controls	Y	Y	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y	Y	Y

Table A6: Patient Volumes and Capacity After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on patient volumes and capacity. Each row shows the coefficient on a post-acquisition indicator interacted with the deal type, i.e., *Stand-alone* (a target acquired that is not part of a roll-up), *Platform* (a new platform acquisition), and *Add-on* (a target added to an existing platform). Columns report effects in the first four years after PE entry and in years five to eight. Outcomes are measured in natural logs (except occupancy rate), so coefficients are semi-elasticities and can be interpreted as approximate percent changes ($100 \times \beta$). The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. These tests assess whether the effects differ significantly across acquisition types. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, profitability); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Log(Total Discharges)		Log(Medicare Discharges)		Log(Medicaid Discharges)		Log(Discharges/Bed)		Occupancy Rate	
Post-Deal Window	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]
Stand-alone	−0.439	−0.074	−0.388	−0.088	−0.239	−0.841	−0.275	−0.101	−0.097**	−0.058**
	(−1.470)	(−0.580)	(−1.310)	(−0.580)	(−0.640)	(−1.190)	(−1.440)	(−0.850)	(−2.360)	(−2.840)
Platform	0.032	0.149***	0.045	0.182***	0.049	0.119	0.075**	0.123***	0.026**	0.062***
	(1.120)	(3.560)	(1.340)	(3.960)	(0.870)	(1.520)	(2.460)	(3.240)	(2.550)	(4.190)
Add-on	−0.200***	−0.111**	−0.178***	−0.092*	−0.240***	−0.038	−0.111***	−0.054	−0.038***	−0.023
	(−5.280)	(−2.140)	(−4.630)	(−1.800)	(−4.610)	(−0.470)	(−3.560)	(−1.280)	(−3.910)	(−1.280)
H_0^A: (1) = (2)	0.111	0.087	0.138	0.085	0.435	0.178	0.066	0.068	0.003	0.000
H_0^B: (2) = (3)	0.000	0.000	0.000	0.000	0.000	0.118	0.000	0.000	0.000	0.000
H_0^C: (1) = (3)	0.437	0.789	0.490	0.983	0.998	0.258	0.404	0.702	0.167	0.144
Observations	11,097	11,544	11,097	11,544	11,097	11,544	11,097	11,544	11,097	11,544
Adj. R^2	0.921	0.920	0.942	0.937	0.913	0.901	0.688	0.680	0.820	0.805
Hospital Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table A7: Revenues and Charges After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on hospital revenues and charges. *Panel A* reports results for revenue measures: Log(MDCR IP Rev) = log Medicare net inpatient revenue; Log(MDCR OP Rev) = log Medicare net outpatient revenue; Log(Net Pat Rev) = log total net patient revenues. *Panel B* reports results for charge measures: Log(MDCR IP Chg) = log Medicare inpatient charges; Log(MDCR OP Chg) = log Medicare outpatient charges; Log(Total Chg) = log total hospital charges. Columns report effects in the first four years after PE entry and in years five to eight. The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. Specifications include hospital, event-time, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, profitability); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Revenue Outcomes	Log(MDCR IP Rev)		Log(MDCR OP Rev)		Log(Net Pat Rev)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.228	0.059	-0.393	-0.166	-0.226	-0.210
	(-0.84)	(0.40)	(-1.08)	(-0.77)	(-1.28)	(-1.13)
(2) Platform	0.063**	0.207***	0.061	0.059	0.039	0.088**
	(2.23)	(5.08)	(1.59)	(1.03)	(1.46)	(2.18)
(3) Add-on	-0.152***	-0.105**	-0.195***	-0.121	-0.169***	-0.151***
	(-4.74)	(-1.99)	(-4.20)	(-1.62)	(-5.44)	(-2.96)
H_0^A (1) = (2)	0.278	0.332	0.203	0.302	0.130	0.116
H_0^B (2) = (3)	0.000	0.000	0.000	0.032	0.000	0.000
H_0^C (1) = (3)	0.786	0.295	0.592	0.840	0.756	0.759
Adj. R^2	0.956	0.951	0.911	0.907	0.951	0.948
Observations	11,357	11,831	11,357	11,831	11,357	11,831
Panel B: Charge Outcomes	Log(MDCR IP Chg)		Log(MDCR OP Chg)		Log(Total Chg)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.364	-0.011	-0.218	-0.122	-0.308**	-0.249
	(-1.42)	(-0.07)	(-0.88)	(-0.39)	(-2.14)	(-1.52)
(2) Platform	0.147***	0.335***	0.095***	0.162***	0.062**	0.229***
	(4.04)	(6.28)	(2.69)	(3.14)	(2.02)	(5.02)
(3) Add-on	-0.158***	-0.066	-0.143***	-0.045	-0.185***	-0.065
	(-3.75)	(-0.77)	(-3.48)	(-0.59)	(-5.09)	(-0.89)
H_0^A (1) = (2)	0.043	0.036	0.197	0.367	0.009	0.004
H_0^B (2) = (3)	0.000	0.000	0.000	0.009	0.000	0.000
H_0^C (1) = (3)	0.434	0.759	0.766	0.809	0.407	0.297
Adj. R^2	0.955	0.951	0.943	0.940	0.961	0.959
Observations	11,357	11,831	11,357	11,831	11,357	11,831
Hospital Controls	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y

Table A8: Costs and Adjusted Volume After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on hospital costs and volumes. Each row shows the coefficient on a post-acquisition indicator interacted with the deal type, i.e., *Stand-alone* (a target acquired that is not part of a roll-up), *Platform* (a new platform acquisition), and *Add-on* (a target added to an existing platform). Columns report effects in the first four years after PE entry and in years five to eight. Outcomes are: log total cost per *adjusted* discharge, log total cost, and log adjusted discharges. The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, profitability, case mix index); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Log(Cost / Adj Disch)		Log(Total Cost)		Log(Adj. Discharges)	
Post-Deal Window	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]
(1) Stand-alone	0.039	−0.072	−0.276	−0.074	−0.315	−0.002
	(0.32)	(−1.10)	(−1.48)	(−0.48)	(−1.10)	(−0.01)
(2) Platform	0.018	−0.044*	0.052*	0.119***	0.033	0.163***
	(0.99)	(−1.82)	(1.79)	(3.13)	(1.15)	(3.85)
(3) Add-on	−0.025	−0.027	−0.234***	−0.159***	−0.209***	−0.132**
	(−0.75)	(−0.77)	(−7.99)	(−2.95)	(−5.44)	(−2.44)
H_0^A: (1) = (2)	0.866	0.663	0.076	0.219	0.220	0.192
H_0^B: (2) = (3)	0.206	0.622	0.000	0.000	0.000	0.000
H_0^C: (1) = (3)	0.620	0.522	0.828	0.604	0.720	0.326
Observations	11,456	11,940	11,456	11,940	11,456	11,940
Adj. R^2	0.848	0.858	0.943	0.943	0.911	0.912
Hospital Controls	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y

Table A9: Cost-to-Charge Ratios After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on cost-to-charge ratios (CCR). Panel A shows effects on overall, ICU, laboratory, and emergency CCR, and Panel B on adult/pediatric, medical supplies, drugs, and operating room CCR. Columns report effects in the first four years after PE entry and in years five to eight. The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, profitability, case mix index); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A	Log(Overall CCR)		Log(ICU CCR)		Log(Lab CCR)		Log(Emergency CCR)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	0.013	0.211***	0.041	0.347***	0.181**	0.052	0.352***	0.386***
	(0.070)	(4.670)	(0.160)	(8.440)	(2.220)	(1.070)	(3.160)	(4.680)
(2) Platform	-0.077***	-0.173***	-0.064**	-0.213***	-0.116***	-0.165***	-0.148***	-0.274***
	(-4.210)	(-5.750)	(-2.210)	(-4.990)	(-3.140)	(-3.010)	(-5.070)	(-5.860)
(3) Add-on	-0.045*	-0.111***	-0.008	-0.016	-0.022	-0.055	-0.073*	-0.172**
	(-1.800)	(-2.720)	(-0.210)	(-0.270)	(-0.670)	(-0.970)	(-1.900)	(-2.130)
H_0^A: (1) = (2)	0.652	0.000	0.681	0.000	0.000	0.001	0.000	0.000
H_0^B: (2) = (3)	0.245	0.184	0.166	0.005	0.030	0.109	0.088	0.246
H_0^C: (1) = (3)	0.771	0.000	0.850	0.000	0.010	0.079	0.000	0.000
Adj. R^2	0.903	0.919	0.850	0.848	0.904	0.908	0.871	0.885
Observations	6,246	6,768	6,246	6,768	6,246	6,768	6,246	6,768

Panel B	Log(Adult/Peds CCR)		Log(Medsupps CCR)		Log(Drugs CCR)		Log(OR CCR)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	0.129***	0.051	0.528***	0.762***	0.160**	0.212	0.065	0.474**
	(2.660)	(1.340)	(2.750)	(3.620)	(2.250)	(0.750)	(0.240)	(2.310)
(2) Platform	-0.077***	-0.127***	0.045	-0.300***	-0.032	-0.148***	-0.051*	-0.066
	(-2.640)	(-3.420)	(0.980)	(-3.880)	(-1.200)	(-3.570)	(-1.670)	(-1.560)
(3) Add-on	-0.018	-0.002	0.014	-0.098	0.000	-0.051	-0.026	-0.164**
	(-0.520)	(-0.040)	(0.220)	(-1.000)	(0.010)	(-0.700)	(-0.600)	(-2.550)
H_0^A: (1) = (2)	0.227	0.033	0.046	0.000	0.276	0.001	0.441	0.012
H_0^B: (2) = (3)	0.013	0.066	0.088	0.004	0.079	0.121	0.031	0.000
H_0^C: (1) = (3)	0.555	0.085	0.021	0.002	0.098	0.047	0.367	0.001
Adj. R^2	0.870	0.871	0.615	0.684	0.855	0.859	0.837	0.860
Observations	6,246	6,768	6,246	6,768	6,246	6,768	6,246	6,768
Hospital Controls	Y	Y	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y	Y	Y

Table A10: Intensive Care Unit (ICU) Outcomes After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on ICU outcomes. Panel A shows effects on ICU activity and billing (inpatient charges, gross inpatient revenue, inpatient days), and Panel B on ICU costs and efficiency (total costs, inpatient costs, cost-to-charge ratio). Columns report effects in the short run (years 0–4) and long run (years 5–8). The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing acquisition types. All specifications include hospital fixed effects, division×year fixed effects, and match-ID fixed effects; hospital controls (log beds, Medicare share, Medicaid share, outpatient share, profitability); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are based on two-way clustered standard errors (hospital and match-ID). Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: ICU Activity & Billing	Log(ICU Inpatient Charges)		Log(ICU Gross Rev)		Log(ICU Inpatient Days)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.312*	-0.314	-0.242*	-0.060	-0.592	-0.096
	(-1.73)	(-0.56)	(-1.77)	(-0.15)	(-1.36)	(-0.20)
(2) Platform	0.112**	0.322***	0.237***	0.543***	-0.005	0.157**
	(2.57)	(4.47)	(3.95)	(6.83)	(-0.12)	(2.36)
(3) Add-on	-0.140**	-0.175	-0.137**	-0.200*	-0.074	-0.210**
	(-2.31)	(-1.45)	(-2.27)	(-1.68)	(-1.28)	(-2.21)
H_0^A: (1) = (2)	0.017	0.260	0.001	0.137	0.171	0.607
H_0^B: (2) = (3)	0.000	0.000	0.000	0.000	0.243	0.000
H_0^C: (1) = (3)	0.348	0.809	0.460	0.736	0.242	0.819
Adj. R^2	0.932	0.923	0.926	0.925	0.877	0.873
Observations	6,246	6,768	6,246	6,768	6,246	6,768

Panel B: ICU Costs & Efficiency	Log(ICU Total Costs)		Log(ICU Inpatient Costs)		Log(ICU CCR)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.308	0.036	-0.310	0.023	0.041	0.347***
	(-0.90)	(0.06)	(-0.91)	(0.04)	(0.16)	(8.44)
(2) Platform	0.047	0.100**	0.047	0.099**	-0.064**	-0.213***
	(1.46)	(2.04)	(1.45)	(2.03)	(-2.21)	(-4.99)
(3) Add-on	-0.135***	-0.123**	-0.135***	-0.124**	-0.008	-0.016
	(-3.32)	(-2.07)	(-3.32)	(-2.08)	(-0.21)	(-0.27)
H_0^A: (1) = (2)	0.296	0.911	0.292	0.895	0.681	0.000
H_0^B: (2) = (3)	0.000	0.001	0.000	0.001	0.166	0.005
H_0^C: (1) = (3)	0.624	0.779	0.619	0.799	0.850	0.000
Adj. R^2	0.931	0.933	0.931	0.933	0.827	0.827
Observations	6,246	6,768	6,246	6,768	6,246	6,768
Hospital Controls	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y

Table A11: Laboratory Outcomes After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on laboratory outcomes. Panel A shows effects on laboratory billing and total costs (inpatient charges, outpatient charges, total costs), and Panel B on laboratory cost breakdown and efficiency (inpatient costs, outpatient costs, cost-to-charge ratio). Columns report effects in the short run (years 0–4) and long run (years 5–8). The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing acquisition types. All specifications include hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital controls (log beds, Medicare share, Medicaid share, outpatient share, profitability, case mix index); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are based on two-way clustered standard errors (hospital and match-ID). Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Laboratory Billing & Total Costs						
	Log(Lab Inpatient Charges)		Log(Lab Outpatient Charges)		Log(Lab Total Costs)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.375	0.053	-0.557	-0.153	-0.283	0.004
	(-1.41)	(0.32)	(-1.47)	(-0.71)	(-1.12)	(0.03)
(2) Platform	0.118**	0.341***	0.130***	0.289***	-0.005	0.032
	(2.61)	(4.95)	(3.23)	(3.93)	(-0.19)	(0.83)
(3) Add-on	-0.059	0.040	-0.151***	-0.162	-0.145***	-0.160**
	(-1.27)	(0.45)	(-2.74)	(-1.57)	(-3.95)	(-2.61)
H_0^A: (1) = (2)	0.058	0.103	0.064	0.047	0.267	0.861
H_0^B: (2) = (3)	0.003	0.004	0.000	0.000	0.000	0.003
H_0^C: (1) = (3)	0.244	0.944	0.294	0.968	0.604	0.321
Adj. R^2	0.943	0.946	0.915	0.919	0.940	0.935
Observations	6,246	6,768	6,246	6,768	6,246	6,768
Panel B: Laboratory Costs & Efficiency						
	Log(Lab Inpatient Costs)		Log(Lab Outpatient Costs)		Log(Lab CCR)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.197	0.091	-0.378	-0.115	0.181**	0.052
	(-1.00)	(0.66)	(-1.17)	(-0.62)	(2.22)	(1.07)
(2) Platform	0.002	0.084**	0.014	0.032	-0.116***	-0.165***
	(0.06)	(2.03)	(0.46)	(0.66)	(-3.14)	(-3.01)
(3) Add-on	-0.077**	-0.030	-0.169***	-0.232***	-0.022	-0.055
	(-1.99)	(-0.46)	(-3.36)	(-2.78)	(-0.67)	(-0.97)
H_0^A: (1) = (2)	0.310	0.960	0.221	0.430	0.000	0.001
H_0^B: (2) = (3)	0.074	0.098	0.001	0.003	0.030	0.109
H_0^C: (1) = (3)	0.567	0.412	0.534	0.555	0.010	0.079
Adj. R^2	0.940	0.936	0.916	0.908	0.890	0.896
Observations	6,246	6,768	6,246	6,768	6,246	6,768
Hospital Controls	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y

Table A12: Post-Acquisition Operating Performance: Platform Hospitals by Add-on Scale

This table reports difference-in-differences estimates of post-acquisition changes in hospital Operating Margin, estimated across add-on intensity buckets among platform hospitals. The estimation sample includes only platform and standalone hospitals (and their matched control hospitals). "None (0)" corresponds to stand-alone hospitals that were acquired as single-entity (non-roll-up) targets. Columns (1)–(4) progressively add fixed effects and controls: Column (1) includes hospital and match fixed effects only; Column (2) adds event-time fixed effects; Column (3) further adds hospital-level controls; and Column (4) adds county-level controls. T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Rows labeled H_0^A–H_0^C report Wald tests comparing the "None (0)" bucket with higher add-on intensity categories. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Dependent variable: Operating Margin			
	(1)	(2)	(3)	(4)
None (0)	−0.003	0.004	−0.030	−0.033
	(−0.07)	(0.09)	(−0.68)	(−0.77)
Single (1)	0.032**	0.038**	0.034**	0.037***
	(2.41)	(2.60)	(2.43)	(2.68)
Moderate (2–9)	0.052*	0.060**	0.053**	0.053**
	(1.96)	(2.20)	(2.09)	(2.05)
Heavy (10+)	0.109*	0.119**	0.116**	0.113*
	(1.95)	(2.16)	(2.02)	(1.92)
H_0^A: None = Single	0.478	0.508	0.154	0.114
H_0^B: None = Moderate	0.315	0.317	0.096	0.082
H_0^C: None = Heavy	0.129	0.119	0.046	0.048
Adj. R^2	0.398	0.399	0.407	0.408
Observations	11,791	11,791	11,791	11,791
Hospital Controls	N	N	Y	Y
County Controls	N	N	N	Y
Hospital FE	Y	Y	Y	Y
Event-time FE	N	Y	Y	Y
Match-ID FE	Y	Y	Y	Y

Table A13: Fund Returns by Add-on Strategy Bucket: Descriptive Averages

This appendix table reports average performance and fund characteristics across groups of buyout funds defined by their reliance on add-on acquisitions. Funds are sorted into mutually exclusive "add-on buckets" based on the total number of add-on deals they complete over the fund's life. *None (0)* corresponds to funds with no add-ons, *Single (1)* includes funds with exactly one add-on, *Moderate (2–9)* includes funds with between two and nine add-ons, and *Heavy (10+)* includes funds with ten or more add-ons. For each bucket, the table reports the average internal rate of return (IRR), total value to paid-in capital (TVPI), number of add-ons, average fund size (in millions of USD), and the number of funds falling into that category. These descriptive statistics highlight how fund outcomes vary systematically with the intensity of add-on activity.

Add-on Bucket	IRR	TVPI	Avg. Add-ons	Avg. Fund Size ($M)	Fund Count
None (0)	0.1353	1.6689	0.00	1,030.94	717
Single (1)	0.1321	1.7224	1.00	1,003.04	727
Moderate (2–9)	0.1391	1.7182	4.39	1,375.66	1,328
Heavy (10+)	0.1662	1.8639	29.86	1,861.12	885

Table A14: Fund Returns and Add-on Strategy Buckets in Buyout Deals

This appendix table reports OLS regressions of fund IRR on add-on bucket indicators defined as in Table A13. Column (1) includes no controls; Column (2) adds log fund size; Column (3) adds both log fund size and vintage fixed effects. Coefficients for bucket dummies are relative to *None (0)*. Parentheses show t-statistics based on robust (HC3) standard errors clustered at the fund level. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Dependent variable: Fund IRR		
	(1)	(2)	(3)
Single (1)	-0.0032	-0.0002	0.0028
	(-0.31)	(-0.02)	(0.28)
Moderate (2–9)	0.0038	0.0101	0.0149*
	(0.45)	(1.23)	(1.81)
Heavy (10+)	0.0309***	0.0438***	0.0434***
	(3.64)	(5.33)	(5.35)
ln(Fund size)		-0.0145***	-0.0156***
		(-7.08)	(-7.28)
Vintage FE	No	No	Yes
Observations	3,657	3,625	3,625
Adj. R^2	0.005	0.021	0.067

Table A15: Fund Returns and Add-on Activity in Buyout Deals

This table reports regression estimates of fund-level internal rate of return (IRR) on logged measures of add-on activity across the full buyout universe. Panel A uses the log of one plus the number of add-on deals completed by the fund. Panel B uses the log of one plus the average number of add-on acquisitions per year (add-on velocity). Specifications (1)–(3) are: (1) no controls, (2) + log fund size, (3) + log fund size and vintage year fixed effects. Reported in parentheses are *t*-statistics based on robust standard errors clustered at the fund level. Significance levels: * p<0.10, ** p<0.05, *** p<0.01.

Panel A: Add-on Count

	Dependent variable: Fund IRR		
	(1)	(2)	(3)
ln(1 + Add-on Count)	0.0107***	0.0149***	0.0142***
	(4.94)	(7.06)	(6.87)
ln(Fund Size)		−0.0150***	−0.0160***
		(-7.28)	(-7.51)
Vintage FE	No	No	Yes
Observations	3,625	3,625	3,625
R^2	0.006	0.022	0.068

Panel B: Add-on Velocity

	Dependent variable: Fund IRR		
	(1)	(2)	(3)
ln(1 + Add-on Velocity)	0.0125**	0.0132**	0.0089*
	(2.30)	(2.46)	(1.69)
ln(Fund Size)		−0.0091***	−0.0113***
		(-4.38)	(-5.39)
Vintage FE	No	No	Yes
Observations	2,870	2,870	2,870
R^2	0.001	0.008	0.068

Table A16: Fund Returns and GP Concurrency in Buyout Deals

This table reports regression estimates of fund-level internal rate of return (IRR) on logged measures of GP concurrency across the full buyout universe. Panel A uses the log of one plus the maximum number of acquisitions a GP closes in any calendar quarter (*Max Count*). Panel B uses the log of one plus the maximum dollar value of acquisitions a GP closes in any quarter (*Peak Value*). Panel C uses the log of one plus the maximum four-quarter rolling average of deal counts (*Peak Rolling Pace*), which captures a GP's ability to sustain a high acquisition tempo over time. Specifications with controls include log fund size and vintage year fixed effects. Reported in parentheses are t-statistics based on robust standard errors clustered at the fund level. Significance levels: * p<0.10, ** p<0.05, *** p<0.01.

Panel A: Max Count

	Dependent variable: Fund IRR		
	(1)	(2)	(3)
ln(1 + Max Count)	0.0297***	0.0478***	0.0460***
	(5.50)	(8.17)	(8.07)
ln(Fund size)		−0.0187***	−0.0203***
		(-8.30)	(-8.73)
Vintage FE	No	No	Yes
Observations	3,621	3,621	3,621
R^2	0.009	0.032	0.078

Panel B: Peak Rolling Pace

	Dependent variable: Fund IRR		
	(1)	(2)	(3)
ln(1 + Peak Rolling Pace)	0.0391***	0.0615***	0.0596***
	(5.70)	(8.23)	(8.15)
ln(Fund size)		−0.0186***	−0.0202***
		(-8.23)	(-8.67)
Vintage FE	No	No	Yes
Observations	3,621	3,621	3,621
R^2	0.010	0.033	0.079

Table A9: Fund Returns and GP Concurrency in Buyout Deals (continued)

Panel C: Peak $ Value			
	Dependent variable: Fund IRR		
	(1)	(2)	(3)
ln(1 + Peak $ Value)	0.0009	0.0073***	0.0069***
	(0.66)	(4.43)	(4.24)
ln(Fund size)		−0.0178***	−0.0194***
		(-6.76)	(-6.97)
Vintage FE	No	No	Yes
Observations	3,373	3,373	3,373
R^2	0.000	0.017	0.063

Figure A1. Geographic Distribution of Hospitals by Acquisition Role

This map shows the locations of hospitals in the private equity acquisition sample. Hospitals are classified as stand-alone acquisitions, initial platform acquisitions, or subsequent add-on acquisitions within multi-hospital roll-up strategies. Stand-alone hospitals (green triangles) represent one-off transactions not linked to a larger system. Platform hospitals (red stars) mark the initial entry point of a private equity firm into a market, and add-on hospitals (blue circles) are subsequent acquisitions consolidated under the same platform.

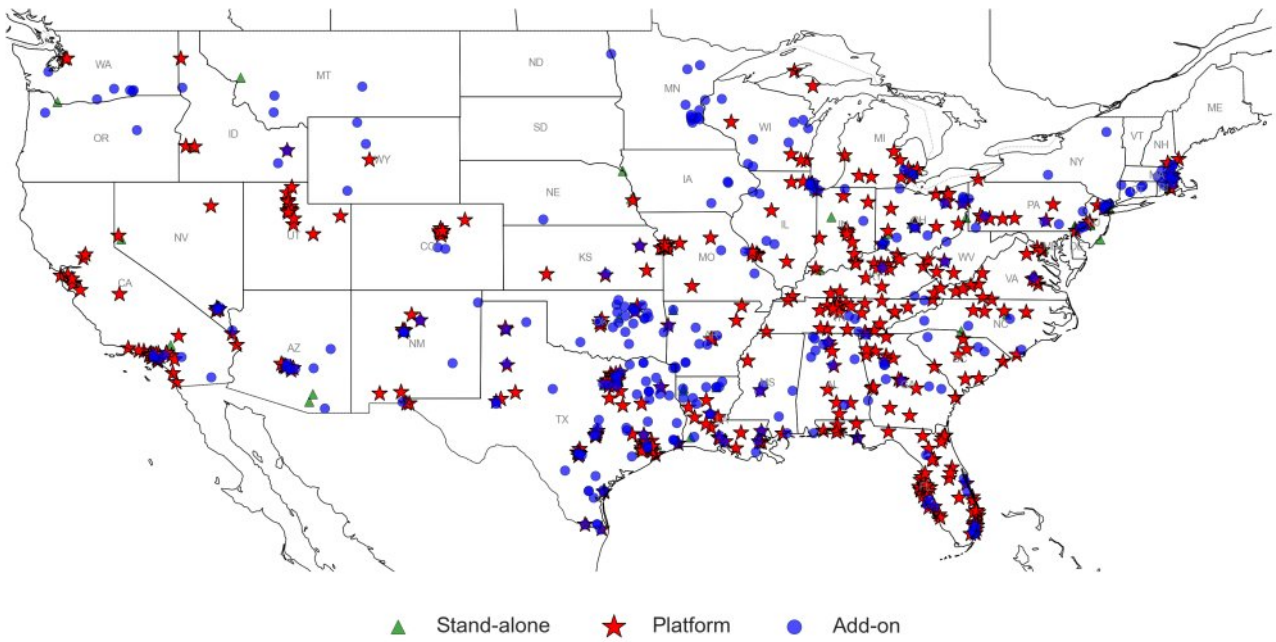
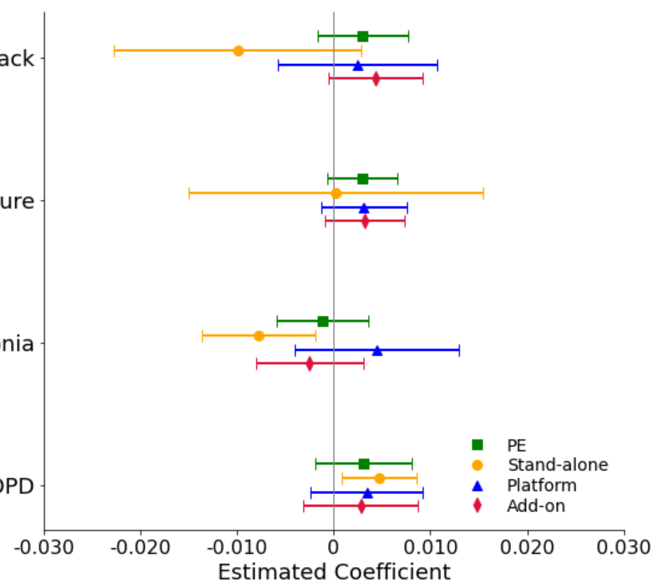
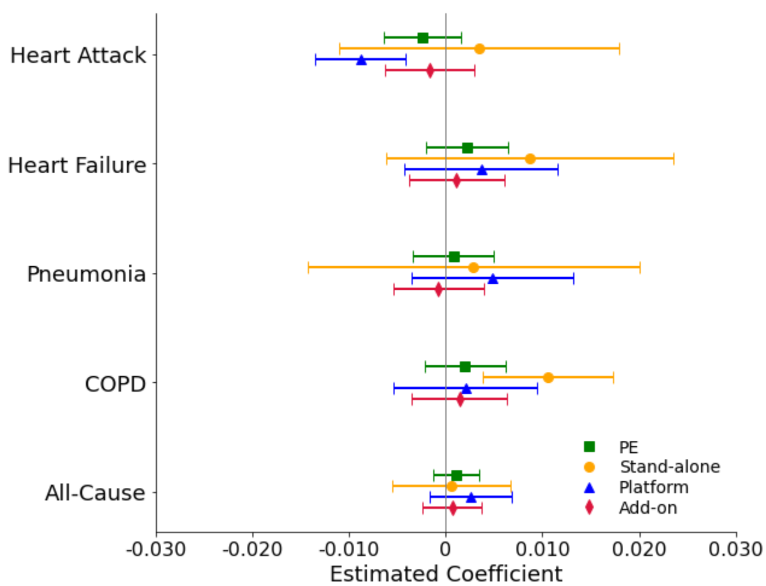


Figure A2. Patient Outcomes After Private Equity Acquisition: Mortality and Readmission

This figure plots the estimated effects of private equity acquisitions on 30-day patient outcomes. Panel A shows mortality rates for heart attack (AMI), heart failure (HF), pneumonia (PN), and chronic obstructive pulmonary disease (COPD). Panel B shows readmission rates for the same conditions as well as all-cause readmissions. All regressions include hospital and county controls, hospital fixed effects, match group fixed effects, and event-time fixed effects. Horizontal bars denote 95% confidence intervals, with standard errors clustered at the hospital level.



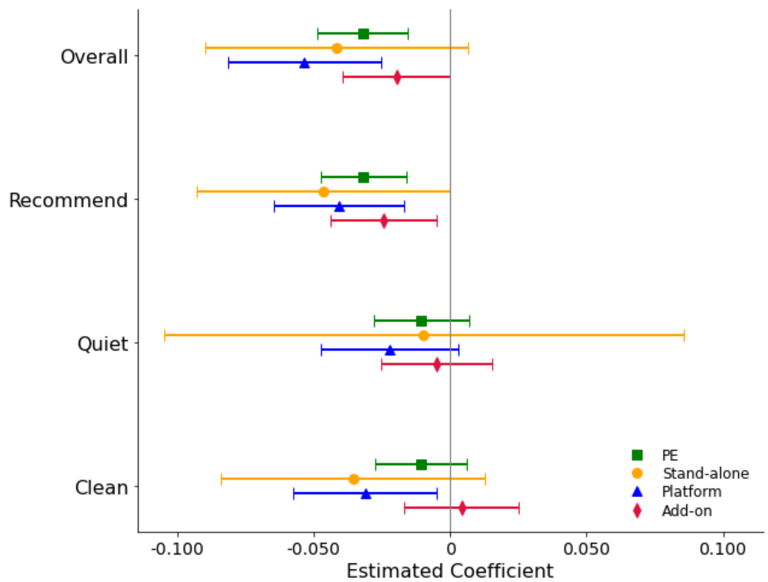
(a) Mortality rates



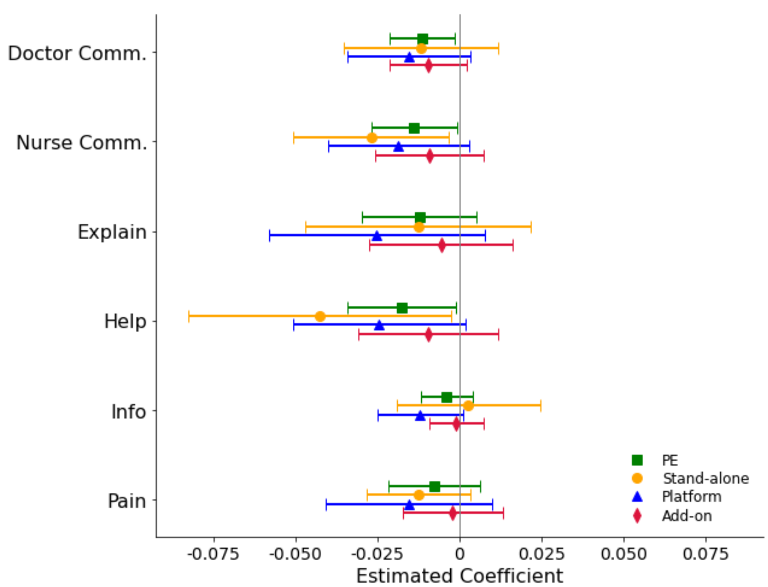
(b) Readmission rates

Figure A3. Patient Experience After Private Equity Acquisition: Satisfaction Survey Measures

This figure plots the estimated effects of private equity acquisitions on patient satisfaction outcomes. Panel A reports overall satisfaction and environment-related measures (overall hospital rating, recommendation, cleanliness, and quietness). Panel B reports care and interaction measures (communication with doctors, communication with nurses, explanation of care, help, information, and pain management). All regressions include hospital and county controls, hospital fixed effects, match group fixed effects, and event-time fixed effects. Horizontal bars denote 95% confidence intervals, with standard errors clustered at the hospital level.



(a) Overall and environment-related satisfaction

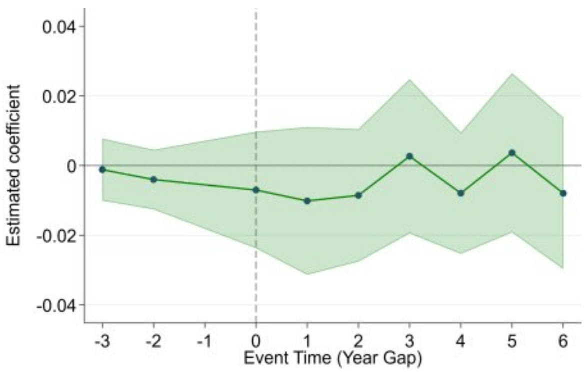


(b) Care and interaction-related satisfaction

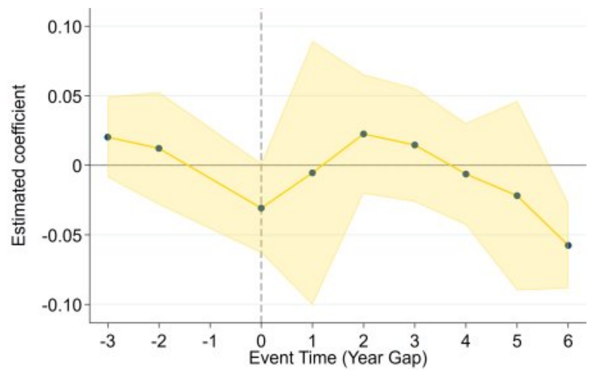
Figure A4. Event-Study Estimates: PE and Standalone Hospitals

This appendix figure plots event-study coefficients with two-way clustered standard errors (provider and match group) for five outcomes: return on assets (ROA), debt financing spread (IB - 3m), Medicare case-mix index (CMI), core employment, and administrative employment. All specifications include hospital controls (log beds, Medicare share, Medicaid share, outpatient share), county controls (log population, log FMR, Black share, Asian share), and fixed effects for provider, year-gap, and match group. The omitted event time is $F1$ (one year before).

Outcome: Debt Financing Spread (IB - 3m)

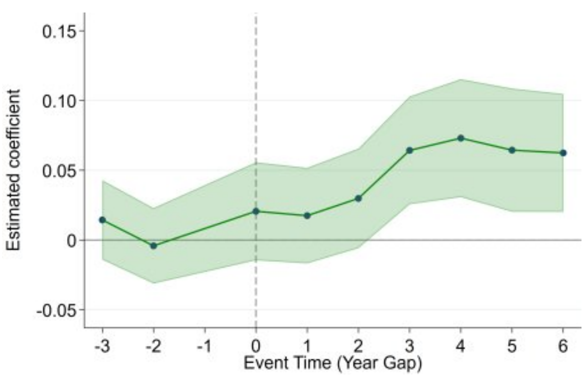


(a) All PE

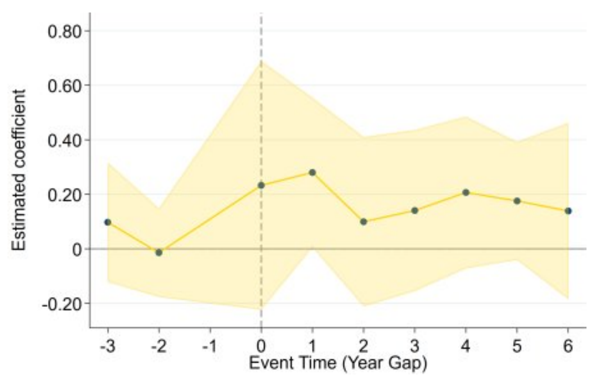


(b) Standalone

Outcome: Return on Assets (ROA)



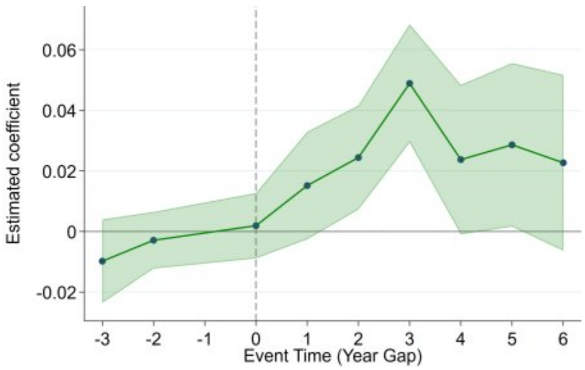
(c) All PE



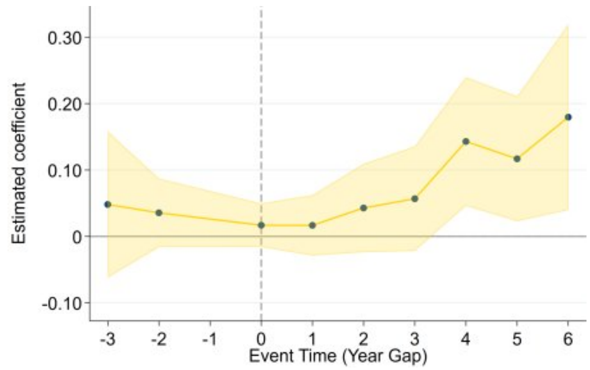
(d) Standalone

Figure A4. Event-Study Estimates: PE and Standalone (continued)

Outcome: Case-Mix Index (CMI)

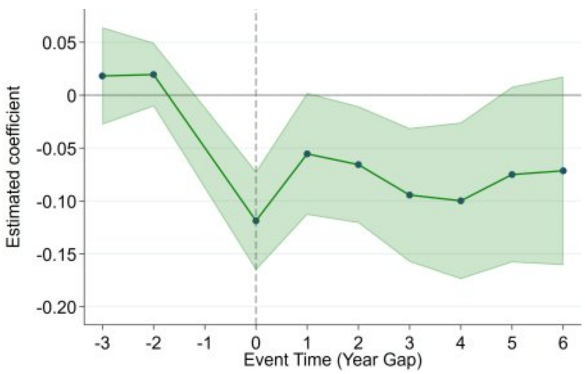


(e) All PE

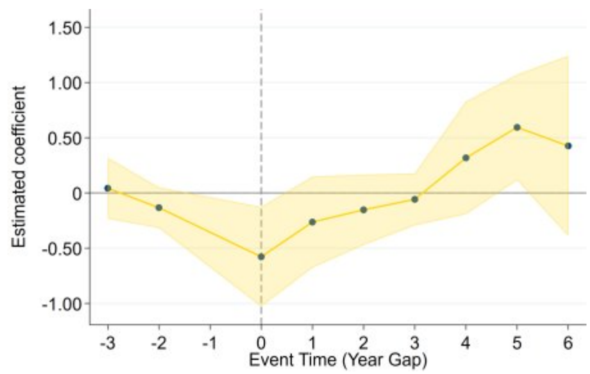


(f) Standalone

Outcome: Core Clinical Employment

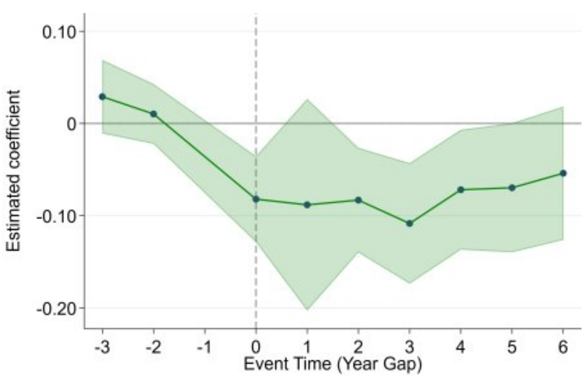


(g) All PE

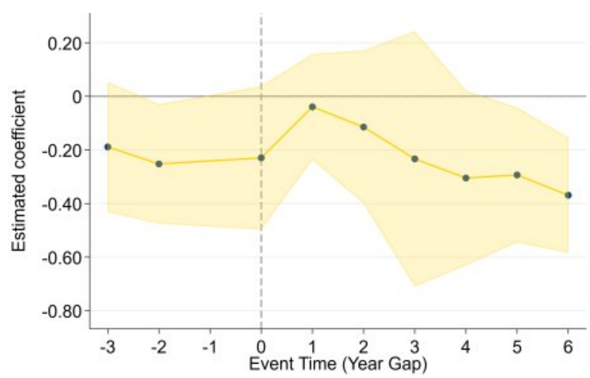


(h) Standalone

Outcome: Administrative Employment



(i) All PE

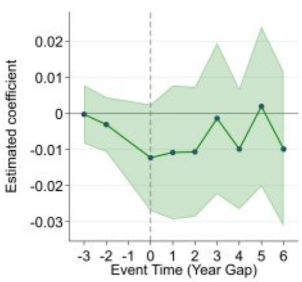


(j) Standalone

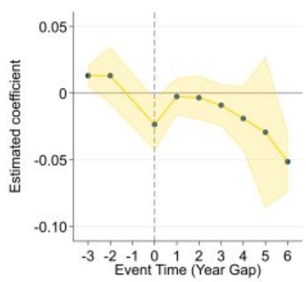
Figure A5. Balanced-Panel Event-Study Estimates

This appendix figure plots balanced-panel event-study coefficients with two-way clustered standard errors (provider and match group). All specifications include hospital controls (log beds, Medicare share, Medicaid share, outpatient share), county controls (log population, log FMR, Black share, Asian share), and fixed effects for provider, year-gap, and match group. The omitted event time is $F1$ (one year before). The balanced panel requires that treated hospitals have complete observations for all years in the window $[-3, +6]$.

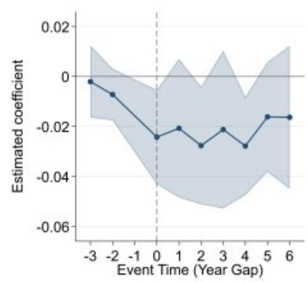
Outcome: Debt Financing Spread (IB - 3m)



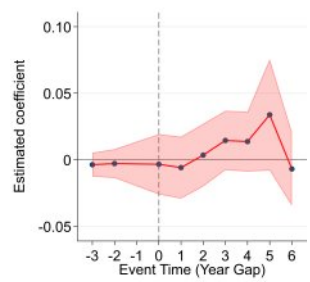
(a) All PE



(b) Standalone

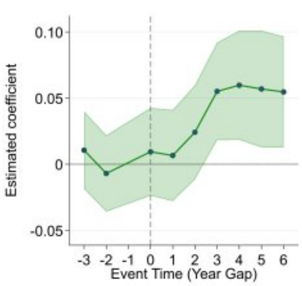


(c) Platform

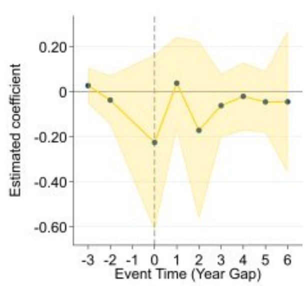


(d) Add-on

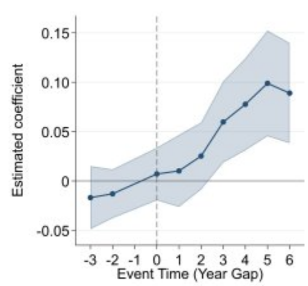
Outcome: Return on Assets (ROA)



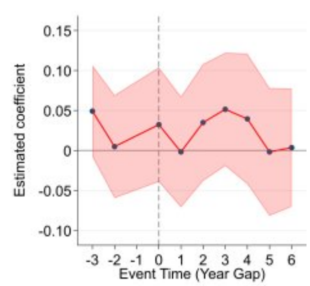
(e) All PE



(f) Standalone



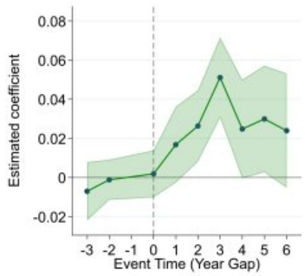
(g) Platform



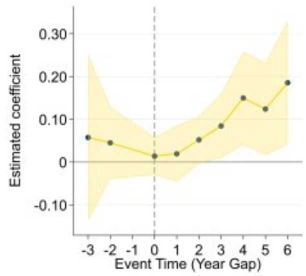
(h) Add-on

Figure A5. Balanced-Panel Event-Study Estimates (continued)

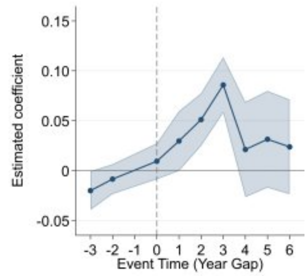
Outcome: Case-Mix Index (CMI)



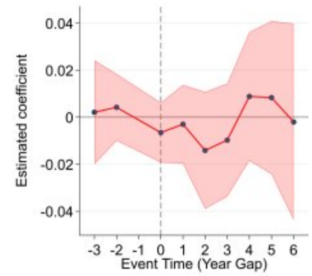
(i) All PE



(j) Standalone

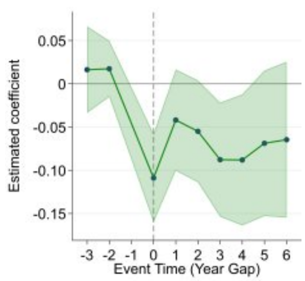


(k) Platform

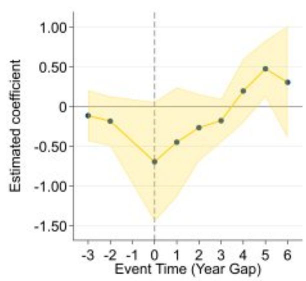


(l) Add-on

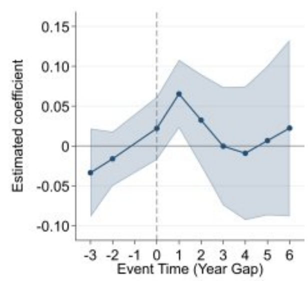
Outcome: Core Clinical Employment



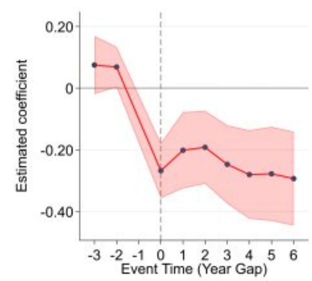
(m) All PE



(n) Standalone

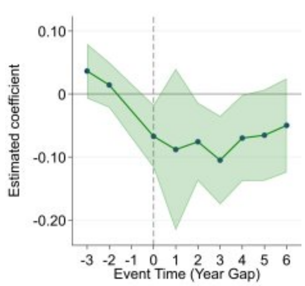


(o) Platform

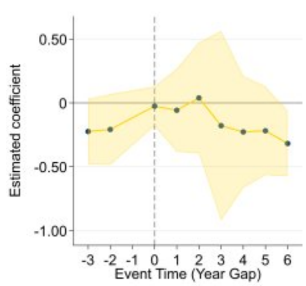


(p) Add-on

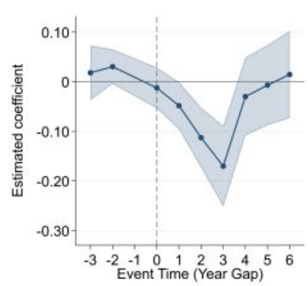
Outcome: Administrative Employment



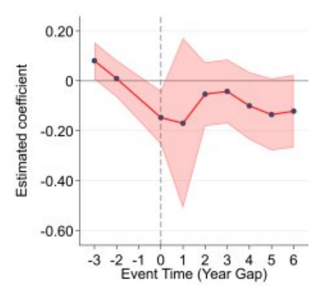
(q) All PE



(r) Standalone



(s) Platform

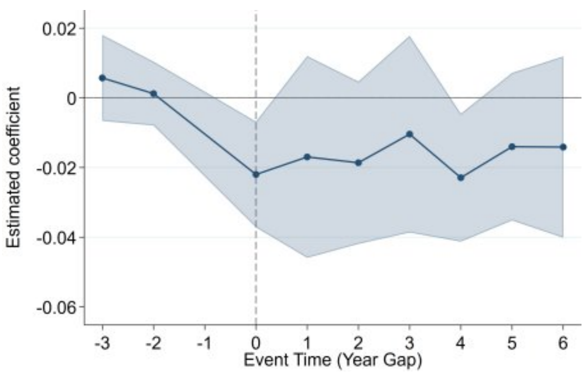


(t) Add-on

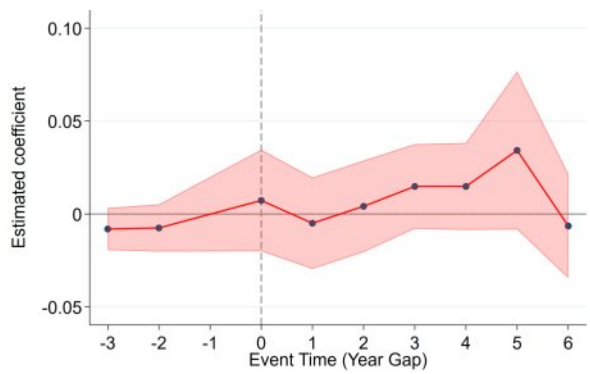
Figure A6. Event-Study Estimates: No Standalone Sample

This appendix figure reports event-study coefficients after reclassifying all stand-alone acquisitions as platforms and restricting the sample to platform and add-on hospitals. Two-way clustered standard errors (provider and match group) are used. All specifications include hospital controls (log beds, Medicare share, Medicaid share, outpatient share), county controls (log population, log FMR, Black share, Asian share), and fixed effects for provider, year-gap, and match group. The omitted event time is $F1$ (one year before).

Outcome: Debt Financing Spread (IB - 3m)

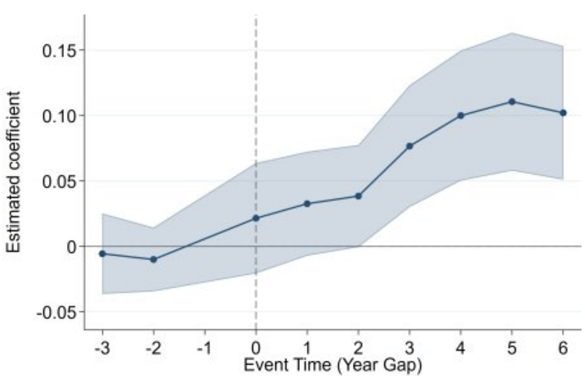


(a) Platform

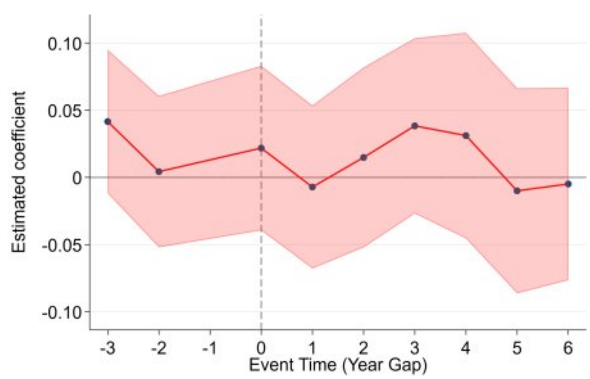


(b) Add-on

Outcome: Return on Assets (ROA)



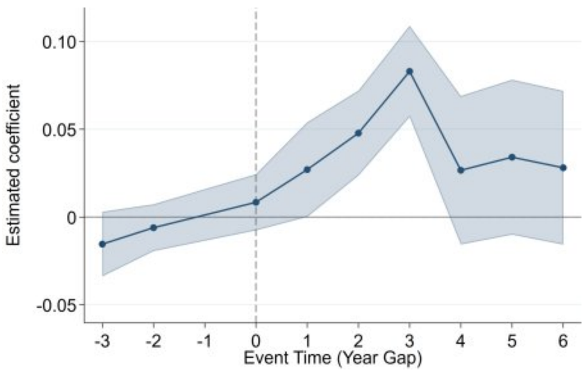
(c) Platform



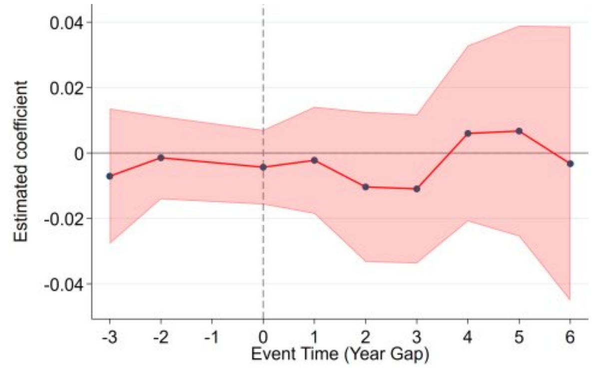
(d) Add-on

Figure A6. Event-Study Estimates: No Standalone Sample (continued)

Outcome: Case-Mix Index (CMI)

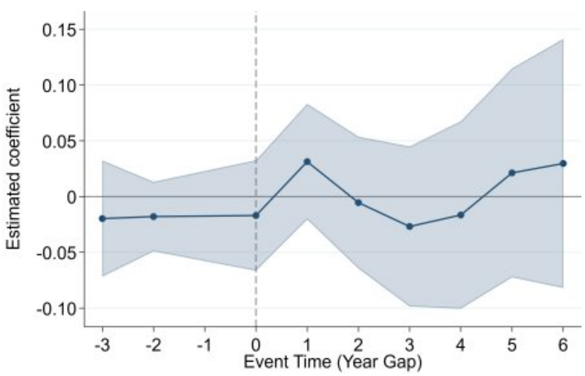


(e) Platform

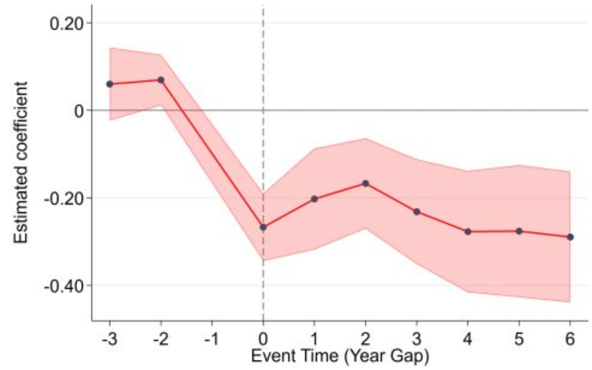


(f) Add-on

Outcome: Core Clinical Employment

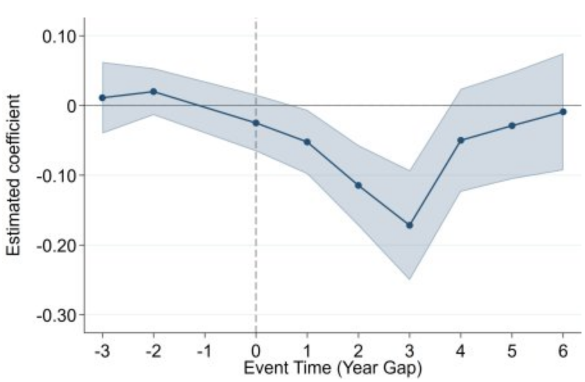


(g) Platform

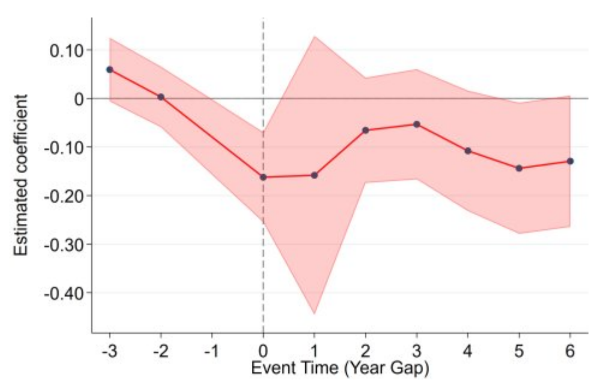


(h) Add-on

Outcome: Administrative Employment



(i) Platform



(j) Add-on

Appendix B: Legal and Accounting Background

This appendix provides detailed background on the legal, accounting, and regulatory frameworks that shape private equity roll-ups in the hospital industry. It sets out the institutional rules that determine how acquisition debt is recorded and whether it appears in hospital-level liabilities, and it explains how reimbursement formulas define the scope for margin improvement. Together, these frameworks clarify why PE buyouts generate financing relief at the platform stage and profitability gains through within-rule adjustments, while remaining subject to federal cost-reporting standards and state oversight.

B.1 Pushdown Accounting and Hospital-Level Liabilities

Under U.S. Generally Accepted Accounting Principles (GAAP), the treatment of acquisition debt depends on whether the acquired entity elects pushdown accounting. Accounting Standards Codification (ASC) 805-50 (formerly SFAS 141R) specifies that pushdown accounting is optional. When a new owner obtains control of a subsidiary, it may, but is not required to, restate the subsidiary's separate financial statements to reflect the parent's purchase-price basis and related acquisition debt.

The Securities and Exchange Commission reaffirmed this discretion in Staff Accounting Bulletin Topic 5.J, which states that a subsidiary "should apply pushdown accounting only when the new parent elects to do so and the resulting financial statements are useful to the subsidiary's users."

Most hospital systems elect not to apply pushdown accounting because doing so would insert system-level buyout debt into the books of each licensed hospital, disrupting continuity in Medicare cost-report comparability and potentially violating state solvency requirements.

Hospitals are required under 42 CFR § 413 to file annual Medicare cost reports that measure reimbursable costs on a consistent historical basis. Electing pushdown accounting would reset asset values and liabilities to the acquisition price, undermining year-to-year comparability that the Centers for Medicare & Medicaid Services (CMS) uses to determine allowable costs.

State licensing laws reinforce this separation. For example:

- **California Health & Safety Code § 1272.3** requires hospitals to maintain positive net-asset balances for license renewal.
- **Texas Administrative Code § 133.41** mandates minimum liquidity ratios for acute-care facilities.

Pushing acquisition debt down to individual hospitals could render many facilities technically insolvent under these statutes. As a result, system-level holding companies retain the leveraged debt, while the operating hospitals record only intercompany equity injections from the parent. This structure explains why hospital-level liabilities in CMS cost reports often decline after acquisition even though consolidated system-level leverage rises.

B.2 Medicare and Medicaid Reimbursement Rules

The term "within-rule" in this paper refers to the concrete reimbursement mechanisms defined by CMS and parallel state programs. These rules determine how hospitals are paid for inpatient and outpatient services, how overhead and capital costs are reimbursed, and how cost reports must be filed. PE-owned hospitals can raise revenue or margins by working within these formulas without violating them.

Diagnosis-Related Groups (DRGs) for inpatient care. CMS pays most inpatient claims under the Inpatient Prospective Payment System (IPPS), which classifies each discharge into a DRG with an associated weight reflecting average resource use. Payment equals the base rate multiplied by the DRG weight and adjusted for area and case factors. Hospitals can lawfully increase revenue by documenting additional comorbidities, shifting service mix toward surgical or intensive-care lines, or emphasizing specialties with favorable DRG margins. Such adjustments raise the Case-Mix Index (CMI) and average reimbursement per discharge, which is consistent with the patterns in Table A1.

Ambulatory Payment Classifications (APCs) for outpatient services. Outpatient procedures are reimbursed under the Outpatient Prospective Payment System (OPPS), which groups services into APCs with fixed national payment rates. By reallocating visits from inpatient to outpatient settings or reclassifying procedures into higher-paying APC codes, hospitals can increase revenue per encounter while remaining within CMS rules. PE-backed systems often emphasize outpatient service expansion because it generates faster turnover and higher margins under OPPS.

Medicare and Medicaid cost-reporting standards (42 CFR § 413). These regulations define which expenses are allowable for reimbursement and require uniform reporting of costs, depreciation, and capital structure. Hospitals that change accounting bases must obtain CMS approval. The rigidity of these standards gives PE owners an incentive to optimize revenue through coding and service-mix adjustments rather than altering official cost structures, reinforcing the within-rule nature of their strategies.

B.3 State-Level Corporate Practice of Medicine Doctrines

State corporate practice of medicine (CPOM) laws determine whether non-physician entities may own, employ, or share in the profits of medical practices. These statutes vary across states and shape hospitals' ability to internalize physician revenue streams.

Concept and legal variation. Strict CPOM states, including California, New York, and Colorado, prohibit corporations or investment funds from directly employing physicians. Hospitals in these states must rely on friendly professional corporations, where a nominally independent professional entity bills payers and contracts its management to a non-physician company. In lenient states, including Florida, Texas, and Arizona, non-physician ownership is permitted or loosely enforced, which allows hospitals and PE firms to consolidate billing operations and capture outpatient revenue streams more fully.

Measurement: the CPOM Regulation Index. Following Liu (2022), this study employs the CPOM Regulation Index, which quantifies cross-state variation in the enforcement of CPOM restrictions. Higher index values indicate more lenient enforcement and greater flexibility for non-physician ownership and management, while lower values indicate stricter enforcement. In the present study, this index proxies for the ease of implementing within-rule revenue strategies, such as expanding physician employment, facility-fee billing, and outpatient reclassification, under otherwise identical Medicare and Medicaid reimbursement rules.

B.4 Integrating Financing and Regulatory Mechanisms

These legal and accounting features clarify why PE buyouts of hospitals produce the empirical patterns observed in the main text. System-level leverage arises from the optional nature of pushdown accounting and state solvency constraints. Profitability improvements arise from exploiting CMS reimbursement rules and CPOM heterogeneity. Both mechanisms operate within the existing legal framework and illustrate how PE owners create value by navigating, rather than violating, the regulatory architecture of the U.S. healthcare system.

Appendix C: Data Construction

This section details the construction of the dataset used in this paper. The raw data was compiled from multiple sources, cleaned, and merged to form a longitudinal panel dataset.

1. Data Sources

The following data sources were used to construct the final dataset:

1. **CMS Cost Reports:** These reports, obtained from the Centers for Medicare and Medicaid Services (CMS), provide detailed financial information on U.S. hospitals. The dataset includes variables on total patient revenue, operating expenses, adjusted costs, and patient volume. Data were extracted for the years 1996 to 2019. Both the 1996 and 2010 versions of the CMS cost report forms were used, which required mapping variables across forms.

2. **Quality Net Data:** This dataset contains hospital quality measures such as mortality and readmission rates, as well as patient satisfaction metrics. The data was sourced from CMS's QualityNet system, covering years from 2005 to 2024. For earlier years, archived data was retrieved using the Wayback Machine to ensure continuity.

3. **Preqin and PitchBook:** These databases were used to gather private equity (PE) acquisition information. Preqin provided details on PE fund activity, while PitchBook supplied comprehensive transaction-level data, including hospital acquisition details, investor information, and deal values.

4. **AHA Data:** The American Hospital Association (AHA) data was utilized to track hospital ownership and system affiliations from 1994 to 2019. This dataset was particularly useful in identifying hospitals that transitioned from one owner to another, providing key information for linking hospitals to their parent systems and ownership transitions.

5. **SDC-Platinum, FactSet, and Capital IQ:** Both public and private acquisition data were extracted from SDC-Platinum, FactSet, and Capital IQ. These sources were used to capture acquisition details for hospitals that were acquired by both private equity firms and other types of investors.

2. Data Cleaning and Transformation

To ensure that the data was suitable for panel analysis, extensive cleaning and transformation steps were applied:

1. **CMS Cost Report Data:** The CMS Cost Report data required significant restructuring. The raw data is organized into various worksheets, each containing a specific set of variables. The worksheets were manually mapped to the relevant variables such as revenue, expenses, and operational metrics using CMS documentation. A mapping crosswalk was developed to link the variables from the 1996 and 2010 versions of the cost report forms.

2. **AHA Data Integration:** AHA data was merged with the CMS Cost Report data by hospital identifiers. Because some hospitals changed systems or ownership structures over time, additional steps were taken to ensure that hospital system transitions were properly captured. This involved tracking hospitals that were acquired by private equity firms as part of broader system transactions.

3. **Preqin and PitchBook Data Cleaning:** The PE acquisition data from Preqin and PitchBook required normalization and deduplication. For example, multiple entries for the same hospital deal were often present in different formats across the datasets. Fuzzy matching techniques were applied to identify duplicate deals and consolidate them under a single identifier. This process was particularly important for identifying whether a hospital was acquired as part of a PE firm's first deal or a subsequent acquisition.

4. **FactSet, Capital IQ, and SDC-Platinum Data Integration:** Public and private market acquisition data from FactSet, Capital IQ and SDC-Platinum were matched with Preqin and PitchBook data using identifiers such as hospital names and deal dates. Fuzzy matching was used to link records across databases, and any discrepancies were manually verified against original acquisition reports.

3. Data Integration and Linking

A key aspect of constructing the dataset involved linking hospitals across different datasets and sources:

1. **Hospital-Level Matching:** Hospitals were matched across the CMS Cost Reports, QualityNet, and AHA datasets using unique hospital identifiers (e.g., Medicare Provider Number). In cases where hospitals changed ownership or systems, the dataset was adjusted to reflect ownership changes over time.

2. **Fuzzy Matching:** Fuzzy matching algorithms (token set ratio) were applied to link hospitals and investors across the Preqin, PitchBook, FactSet, and SDC-Platinum datasets.

Matching thresholds were carefully calibrated to minimize false positives and negatives. Any ambiguous matches were manually reviewed to ensure data integrity.

3. **Investor Matching:** Private equity firms and other investors were matched to hospitals using deal-level data from PitchBook and Preqin. The dataset includes information on the date of acquisition, deal value, and whether the acquisition was part of a first or subsequent deal for the PE firm.

4. Data Validation and Final Dataset Construction

The final dataset underwent several rounds of validation and testing to ensure reliability:

1. **Cross-Validation of Acquisition Dates:** Acquisition dates from Preqin, PitchBook, SDC-Platinum, and FactSet were cross-validated with publicly available sources, including news articles and reports. Any discrepancies were manually resolved.

2. **LLM-Verified Matches:** Matches between hospitals and investors were validated using LLM models. The use of LLM models, including GPT-4o, ensured high accuracy in the matching process. Manual checks were performed on cases where the LLM models did not agree.

3. **Final Dataset Structure:** The dataset is structured as a balanced panel dataset, with hospital-level observations spanning from 1996 to 2019. Each hospital is identified by its Medicare Provider Number, and variables track financial performance, ownership changes, and operational efficiency before and after PE acquisition.

This comprehensive dataset enables a detailed analysis of how private equity ownership affects hospital performance, including changes in operational efficiency, profitability, and patient outcomes.